

SPECIAL
ISSUE

BANISH DIGITAL NOISE FROM YOUR IMAGES
SHOOTING TECHNIQUES AND SOFTWARE SKILLS

amateur

photographer

THE WORLD'S NO.1 WEEKLY PHOTO MAGAZINE

Saturday 20 April 2013

www.amateurphotographer.co.uk

HOW TO... CONTROL DIGITAL NOISE

Advanced skills, tips and know-how

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No-noise open-shutter images taken at night

NOISE-REDUCTION SOFTWARE PACKAGES

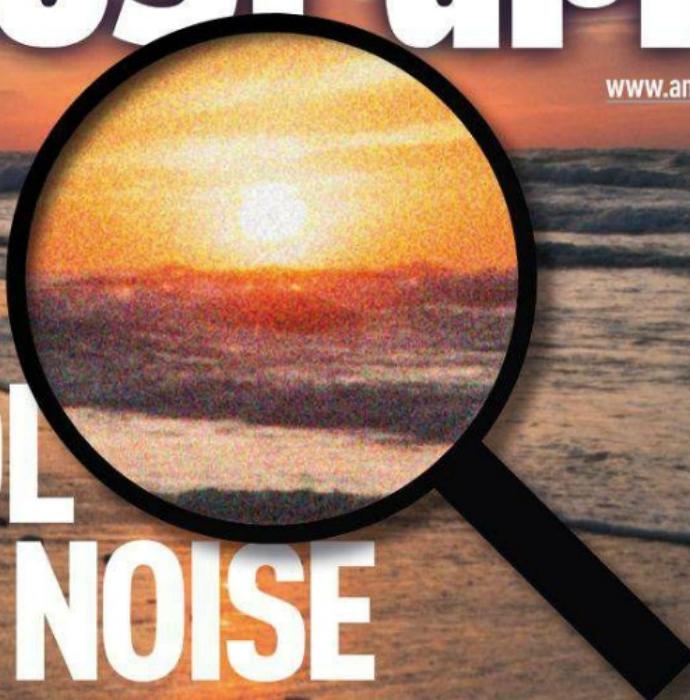
Six of the best on test

SOFTWARE TOOLS TO CONTROL NOISE

How to get to grips with cleaning up your images

IN-CAMERA NOISE CONTROL

The best settings to use and those to avoid



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Amateur Photographer For everyone who loves photography

EVERY weekday, at 6pm, the air-conditioning in the AP office switches off. It is quite disorientating when the office becomes so quiet, and I often wonder why I hadn't noticed the constant hum that had been background noise throughout the working day.

Like the hum of the air conditioning, digital image noise is something that all digital photographers have to accept and learn to live with. Despite sensor technology improving dramatically over the past few years, it will take an even more significant leap in technology to eradicate image noise completely.

However, I've got to a stage where I have become comfortable with image noise. I have learned how my cameras will perform in different lighting conditions, and I've spent time experimenting with noise-reduction software and learning how to get the best results. In this issue, we have all the advice you need to help you control noise in your images, from chroma and luminance noise to choosing the right software package.



Richard Sibley
Technical editor

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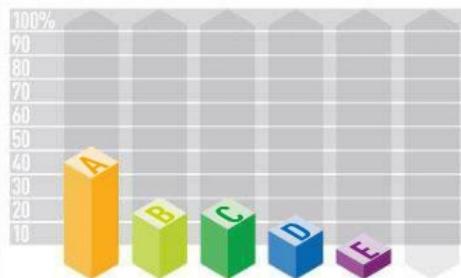
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Our experts answer your questions

THE AP READERS' POLL

IN AP 30 MARCH WE ASKED...

Do you think bridge cameras are worthy machines for good photography?



YOU ANSWERED...

A Yes, absolutely	42%
B Yes, but only a couple	20%
C In principle, but not in practice	20%
D Not really	14%
E Definitely not	4%

THIS WEEK WE ASK...

How do you deal with image noise?

VOTE ONLINE www.amateurphotographer.co.uk

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Digital noise is the equivalent of film grain, but unlike film grain it can be reduced or virtually eliminated by software. Vincent Oliver takes a look at six noise-reduction software packages to see how well they perform

HOW TO HAVE YOUR PICTURES PUBLISHED IN READER SPOTLIGHT Send in a selection of up to ten images. They can be either a selection of different images or all have the same theme. Digital files sent on CD should be saved in a Photoshop-compatible format, such as JPEG or TIFF, with a contact sheet and submission form. Visit www.amateurphotographer.co.uk/spotlight for details. We cannot publish images without the necessary technical details. Each RGB image should be a minimum of 2480 pixels along its longest length. Transparencies and prints are also accepted. We recommend that transparencies are sent without glass mounts and posted via Special Delivery. For transparencies, prints or discs to be returned you must include an SAE with sufficient postage.

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APNews

News | Analysis | Comment | PhotoDiary 20/4/13

“British wildlife lovers and photographers will be horrified”

Nikon embroiled in hunting row, page 6

- 16MP sensor • Articulated screen • £449 with 14-42mm lens

PANASONIC UNVEILS WI-FI-EQUIPPED GF6

PANASONIC has unveiled a new micro four thirds camera called the Lumix DMC-GF6, which boasts built-in Wi-Fi.

The GF6 features an articulated screen and a Venus Engine image processor designed to improve photography in low light.

The tilting (180°), 3in, 1.04-million-dot touchscreen is claimed to deliver a 20% improvement in colour reproduction and 'dramatic' suppression of external reflections.

The GF6 houses a 16-million-pixel Live MOS imaging sensor, borrowed from the GX1, that is said to incorporate 'advanced noise-reduction systems'.

A spokesman added: 'The controllable area of noise has been expanded by approximately 64x in size. This makes it possible to remove large blocks of noise that, formerly, were hard to detect and helps produce clear, smooth images, especially for night-time scenery.'

Photographers can expand ISO sensitivity up to 25,600 and shoot video in full HD.

The newcomer has 19 filter effects, five more than on the GF5 it replaces: old days, sunshine, bleach bypass, toy pop and fantasy. Also included are filters such as retro, expressive and dynamic monochrome.

At the time of writing, the GF6 was hailed

as the world's first interchangeable-lens camera with Near Field Communication Wi-Fi.

Near Field Communication allows contactless communication between compatible devices, and transfer of images by touching them together – or holding them very close to each other – without users having to tediously re-enter Wi-Fi authorisation login details each time.

The GF6 is also designed to enable photographers to shoot stills and video from the camera remotely, using a tablet or smartphone.

Users should also be able to control the camera's exposure settings, focusing and zoom in this way, according to Panasonic – once they have downloaded the Panasonic Image App software to their Apple iOS or Android devices.

The GF6 includes Light Speed AF, which is designed to capture fast-moving subjects clearly, plus AF tracking.

A function lever has been added for 'one-hand control', allowing control of zooming



and aperture, for example. The camera also

incorporates features designed to help beginners improve their photography. These include a scene guide, which provides technical tips and advice on the best lens to use for a chosen scene.

Panasonic claims that the GF6 has a start-up time of 0.498secs.

The GF6 is due to go on sale at the end of this month, priced £449 in a kit with a 14-42mm lens. It will be available in a choice of black or white. Panasonic has no current plan to launch a body-only version.

The camera was unveiled to European photography journalists at an event in Vienna, Austria.

● See next week's AP for a hands-on preview

SNAP SHOTS

● Claims that US film company Disney was set to take over German camera firm Leica were exposed as an April Fool's joke. The spoof story, dreamt up by Leica Forum members and dispatched in a newsletter on 1 April, claimed that amateur sleuths had cracked a secret online code to reveal evidence of a deal that could be traced back to an anonymous 'German computer centre'. The bogus website was aptly named 'Get The Red Dot'.

● Jessops' rebirth did not pass hiccup-free. Jessops tasked Twitter users to enter an Easter-themed competition for prizes that included DSLRs. One of the competition winners was disqualified three days after the relaunch when it emerged they had not taken the image submitted. And the revival of the Jessops website, due to launch at noon on 28 March, was delayed for several hours.

SPANIARD SCOOPS CHINA PRESS PHOTO CROWN

A MOVING image of a man kissing the hand of a dead relative in Gaza has won Picture of the Year in this year's China International Press Photo Competition.

The winning photo, entitled 'Goodbye in Gaza', was captured by Spanish photographer Bernat Armangué.

'No matter which side of a conflict you are covering, nobody enjoys taking pictures in moments like this,' Armangué told BBC News last year.

The photographer, who works for Associated Press, commented: 'For

years I have covered both sides of the Israeli-Palestinian problem and I've seen people from both sides mourning their lost ones. I guess this is what this picture shows: the price of war, no matter who or where you are.'

The same image scooped first place in the spot news category of the World Press Photo awards earlier this year.

The China International Press Photo Competition was set up in 2005 and is organised by the Photojournalist Society of China.



Do you have a story?

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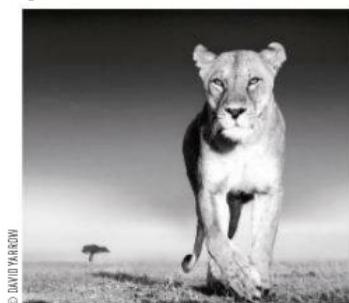
A week of photographic opportunity

PHOTO DIARY

Wednesday 17 April

EXHIBITION Recent Encounters by David Yarrow, until 20 April at Eleven, London SW1W 9LX. Tel: 0207 823 5540. Visit www.elevenfineart.com.

EXHIBITION Brett Weston: Nudes & Dunes, until 24 April at 3 Jubilee Place, London SW3 3TD. Tel: 0207 352 3649. Visit [www.michaelhoppengallery.com](http://michaelhoppengallery.com).



© DAVID YARROW

Thursday 18 April

EXHIBITION Festival Cultures by Piers Rawson, until 4 May at Bridport Arts Centre, Bridport, Dorset DT6 3NR. Tel: 01308 427 183. Visit www.bridport-arts.com. **EXHIBITION** Bert Hardy Centenary Exhibition, until 26 May at The Photographers' Gallery, London W1F 7LW. Tel: 0207 087 9320. Visit www.thephotographersgallery.org.uk.

Friday 19 April



Gallery, London WC2H 0HE. Tel: 0207 306 0055. Visit www.npg.org.uk.

Saturday 20 April

DON'T MISS Vintage car rally (11am-4.30pm) at Finch Foundry, Okehampton, Devon EX20 2NW. Tel: 01837 840 046. Visit www.nationaltrust.org.uk. **EXHIBITION** Environmental Photographer of the Year, until 3 May at the Royal Geographical Society, London SW7 2AR. Tel: 0207 591 3000. Visit www.epoty.org.

Sunday 21 April

DON'T MISS Nikon D800/D800E Masterclass by Simon Stafford, billed as a practical workshop (2pm-5.30pm, cost £155 or £95 to *Nikon Owner* subscribers). Takes place at Fitzroy House, London W1T 6DX. To book, email gillian.greenwood@graysofwestminster.co.uk. **EXHIBITION** Sebastião Salgado: Genesis, until 8 September at the Natural History Museum, London SW7 5BD. Tel: 0207 942 5011. Visit www.nhm.ac.uk.

Monday 22 April

EXHIBITION Graham Nash: Life on the Road, until 26 May at Proud Camden, London NW1 8AH. Tel: 0207 482 3867. Visit www.proud.co.uk. **EXHIBITION** Landmark: The Fields of Photography, contemporary works, until 28 April at Somerset House, London WC2R 1LA. Tel: 0207 845 4600. Visit www.somersethouse.org.uk.

Tuesday 23 April LATEST AP ON SALE

EXHIBITION Alchemy: The Tango Connection, includes work by photographer Aaron Davies, until 27 April at The Grant Bradley Gallery, Bristol BS3 4AQ. Tel: 0117 9637 673. Visit www.grantbradleygallery.co.uk. **EXHIBITION** East End Faces, by David Bailey, until 26 May at William Morris Gallery, London E17 4PP. Tel: 0208 496 4390. Visit www.wmgallery.org.uk.

© GIOACCHINO ALTOBELLI COURTESY OF DANIEL BLAU

Nikon Store Hunting

The screenshot shows the Nikon Store Hunting website. At the top right, there's a search bar and a 'Monarch African' link. The main content area features a large image of the Nikon Monarch African rifle scope. Below the image, there's a brief description: 'Africa has long been a continent of dreams for hunters around the world. For those seeking their dangerous game adventure on the Dark Continent, Nikon has a new riflescope series that is more than ready for the hunt. With ultra wide field of view, four time [sic] magnification zoom and generous eye relief, the Monarch African gives you everything you need in a dangerous game riflescope.' There are also sections for 'Special Offers', 'Quick Links', 'Customer Service', and a 'Sign up for our Newsletter' button.

Furore over company's support of hunting

NIKON FACES RIFLE OPTICS BACKLASH

CAMERA maker Nikon has been accused of double standards for selling riflescopes for hunting animals, while promoting wildlife photography.

Animal welfare charity Viva! has called on consumers to boycott Nikon products and has launched a petition that, at the time of writing, had won support from around 3,000 people.

Wildlife photographer Stefano Unterthiner told the charity: 'I have used Nikon since I was a young boy, as I was fascinated by nature and wildlife. I always saw Nikon as a company close to nature, but I was wrong.'

'I do not understand and cannot agree with their support for trophy hunting, which sends out entirely the wrong message to global photographers who love nature. Wildlife needs protecting now more than ever. I urge the company to end its support for trophy hunting.'

Campaign manager Justin Kerswell accused Nikon of 'unforgiveable hypocrisy'. He added: 'I'm sure British wildlife lovers and photographers will be horrified to discover that Nikon produces equipment not only designed to take beautiful pictures of wild animals, but to help kill them too.'

A Nikon spokesman told AP: 'Nikon makes lenses for a wide variety of customers – camera lenses for photographers, microscopes that aid in scientific breakthroughs, and sport optics such as rangefinders for golfers, binoculars and scopes for outdoor enthusiasts.'

'Nikon Sport Optics manufactures the products for outdoor enthusiasts and respects legal hunting, conservation and wildlife management that meets local and national regulations. Nikon always values

feedback from customers and the public.'

The charity's petition carries the emotive tagline, 'Never A Nikon While They Make Blood Money From Hunting'.

Nikon says its Monarch riflescopes feature an optical system designed to 'give shooters increased versatility and superlative performance with virtually any type of rifle, in any calibre and in any imaginable hunting situation'.

A riflescope called the Monarch African has sparked particular concern, of which the company says: 'Africa has long been a continent of dreams for hunters around the world. For those seeking their dangerous game adventure... Nikon has a new riflescope series that is more than ready for the hunt. With ultra wide field of view, four time [sic] magnification zoom and generous eye relief, the Monarch African gives you everything you need in a dangerous game riflescope.'



Nikon's links with hunting is seen, by some, as being at odds with wildlife photography

SNAP SHOTS

● Time is running out to enter the Monochrome category of the International Garden Photographer of the Year, which closes on 30 April. Competition director Philip Smith said: 'The Monochrome category is all about the shapes and textures to be found in plants and gardens: it is also a powerful expression of our love for traditional photography.' Visit www.ipoty.com.

● Customers are promised expert advice from manufacturers at Open Days hosted by selected Calumet stores. Events will be held in Belfast on 18 April, Manchester on 25 April, and Drummond Street in London on 7 May. To find out which manufacturers will be at the venues, visit www.calumetphoto.co.uk/eng/pages/spring-open-days.cfm.

● A job as a photo specialist with Scotland-based retailer Ffordes is up for grabs. Applicants should have a sound knowledge of camera gear and, preferably, photographic retail experience. Candidates should email info@ffordes.com or apply in writing to Ffordes Photographic Ltd, The Kirk, Wester Balblair, Inverness-shire IV4 7BQ.



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JESSOPS BOSS EYES UP EUROPE

EXCLUSIVE

JESSOPS CEO and chairman Peter Jones has outlined plans to branch out into Europe and says he has been 'overwhelmed' by the positive response since returning the chain to the UK high street.

Jones said: 'I've been very touched by the great British public who have got behind me since I purchased Jessops. It's great to see such an iconic high-street brand come back to life so quickly.'

He added that Jessops has received an 'upbeat' reaction from customers, both in high-street stores and via Twitter.

Six shops reopened over the Easter weekend and a further 30 are due to open before the end of this month (see *News*, AP 13 April). A planned branch in Islington would give Jessops two shops in London, the other being on Oxford Street, which reopened last month.

The revival of the branch at Westfield shopping centre in Stratford, east London, is also on the cards, while an outlet in Leicester – the historic home of the chain founded by Frank Jessop in 1935 – is not being ruled out.

'OVERHEADS' KEY TO SURVIVAL

Speaking to AP, the *Dragons' Den* tycoon outlined a

masterplan based on minimising overheads, but admits he is taking a big risk, and has 'a challenge on our hands'.

'The central overheads at the old Jessops were so high – it was very tough for them to do anything,' he said in an interview with AP at the Oxford Street store.

'We've got to keep that layer of our cost model [overheads] really under control, and make sure we are buying at the best rates.'

'In terms of centralised distribution operations and central finance, I already have that across my group of companies, so we've got a bit of breathing space across the cost base.'

Jones said he has agreed with suppliers to buy stock at the 'best rates possible', and that he has won support from all manufacturers, many of whom lost millions when the chain collapsed.

'What's amazing [is that] 22 manufacturers supplied the old company and 22 have gone live with us today. Not one manufacturer has not wanted to be part of the new story.'



CHRIS CHEESMAN

'WE WILL PROVIDE A BETTER SERVICE'

In an appeal to former Jessops customers, Jones added: 'Come back and try the new experience. We are bigger and better in terms of our purchasing weight. We are going to provide a better service.'

'We will invest more in our people and staff, but we are doing it on the basis that we are not throwing money at the wall – we've got an underlying cost base that's reduced and will be very low.'

After buying the Jessops brand name three months ago, Jones wasted no time in

registering Jessops Europe Limited at Companies House. So, does this mean the new man in charge has a wider plan to march on Europe?

'I couldn't possibly comment, but I don't do things by halves,' he replied.

'This business is an iconic brand. It has real positioning potential across Europe. You never know, you might find us in some key location. But it will be very much predicated around online and retail.'

'I think "collect at store" is going to be the future of the way that we [customers] order product online...'

OLYMPUS WHISTLEBLOWER WINS PRIZE

OLYMPUS whistleblower Michael Woodford has been named winner of the Contrarian Prize, a new award that aims to recognise individuals in British public life who 'go against the grain and put their head above the parapet by demonstrating independence, courage and sacrifice'.

Woodford (pictured), who beat candidates including Nigel Farage, leader of the UK Independence Party, said he was 'delighted to be the inaugural recipient of such a prestigious prize'.

The award's organisers praised the former CEO for acting ethically in a 'post-Enron, post-banking crisis world', driven by 'principle and the desire to



CHRIS CHEESMAN

expose what happened in an effort to 'make us all safer'.

Woodford, who helped expose a £1.1 billion accounting cover-up at Olympus Japan in 2011, was applauded for blowing the whistle on his boardroom colleagues 'despite intimidation and coercion from the very people that promoted him'.

They added: 'Woodford, who spent almost £1 million of his own money defending himself and won, displayed great courage by acting alone and putting his own life and that of his family in danger because he spoke out.'

The award was set up by Ali Miraj, a chartered accountant and former Conservative parliamentary candidate.

AP
THIS
WEEK
IN...

1889

We notice a very excellent article on "Instantaneous Photography at Night" in *La Nature*, but we are sorry to see that the illustration, stated to be a "reproduction of a photograph taken by night," by M. E. Piaget, is not a reproduction of the photograph, but a badly drawn and worse cut wood block. Several of the attachments to candles, for the purpose of supplying magnesium powder to the point of combustion, have distinct advantages, and are worthy of attention. The calls upon our space at this season of the year will not permit us to publish a translation of the article, but those interested in flash-light photography should procure a copy of *La Nature* for April 13th.

Four and a half years since it first went on sale, AP unmasked as an apparent fake a supposed copy of a photograph in another journal of the day. 'We notice a very excellent article on "Instantaneous Photography at Night" in *La Nature*, reported AP, 'but we are sorry to see that the illustration, stated to be a "reproduction of a photograph taken by night," by ME Piaget, is not a reproduction of the photograph, but a badly drawn and worse cut wood block.' That said, AP urged photographers to 'procure a copy' of *La Nature*'s 13 April issue to peruse the article on flashlight photography, parts of which were worthy of attention.

SNAP SHOTS

The deadline to enter the 2013 British Wildlife Photography Awards is fast approaching. The closing date for this year's contest is 4 May 2013. Categories featured in the £20,000 competition include Botanical Britain and Natural Details. Visit www.bwpawards.org for more details.

The three contenders for the Best Photography Book Award have been announced. The shortlisted finalists are: Kate Bush for *Everything Was Moving: Photography from the 60s and 70s*; Billy Monk for *Billy Monk*; Anne Wilkes Tucker, Will Michels and Natalie Zest for *War/Photography: Images of Armed Conflict and its Aftermath*. The winner will be announced on 25 April.



Major brands at one-day event

LATEST GEAR AT LCE SOUTHAMPTON SHOW

ENTHUSIASTS will be able to see the latest gear from major brands at a photo show in Southampton on 18 April.

The LCE Southampton Pro Show 2013 features free talks and 'animal macro' studio photo sessions in conjunction with Canon. Visitors are also promised free basic sensor cleaning for their Canon or

Nikon DSLR. Doors open from 11am-7pm. A Canon EOS M kit will be up for grabs in a free prize draw.

Organised by the London Camera Exchange, the event takes place at the Novotel Hotel, 1 West Quay Road, Southampton SO15 1RA.

For details visit www.lcegroup.co.uk or call 0238 063 2629.

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UK PROBE INTO OLYMPUS SCANDAL PERSISTS

THE UK'S Serious Fraud Office (SFO) continues to investigate the affairs surrounding the Olympus scandal, 18 months after its British CEO blew the whistle on a billion-pound cover-up.

David Jones, who heads up the SFO's press office, told AP: 'The situation is that the investigation is ongoing.'

Olympus whistleblower Michael Woodford, who was based in Japan, was sacked in October 2011 after raising suspicions over \$687 million in advisory fees paid in connection with Olympus's acquisition of UK

medical firm Gyrus in 2008. Jones confirmed that the SFO continues to make enquiries regarding 'allegations connected with Olympus'.

The SFO launched its investigation after Woodford submitted documents to its offices in London shortly after he was dismissed.

Last year, former Olympus president Tsuyoshi Kikukawa pleaded guilty in connection with the accounting scandal, along with former executive vice-president Hisashi Mori and Hideo Yamada, a former Olympus auditor.

CLUB NEWS

Club news from around the country

CAERNARFON CAMERA CLUB

The club is due to stage its first major exhibition from 27 April-29 June at the Electric Mountain, Llanberis, Gwynedd LL55 4UR, 10am-6pm. The club meets on Mondays at 7.30pm. For details visit www.caernarfoncameraclub.co.uk.

HAILSHAM PHOTOGRAPHIC SOCIETY

Members will hold their annual print exhibition from 17-22 June at the Charles Hunt Centre, Vicarage Field, Hailsham, East Sussex BN27 1BG, 10am-4pm. For details call 01323 843 078 or visit www.hailshamphotographicsociety.co.uk.



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At the heart of the image



APReview

The latest photography books, exhibitions and websites. By Jon Stapley



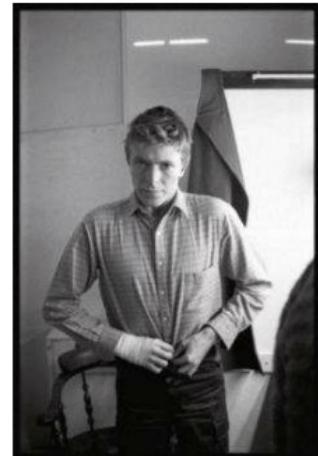
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EXHIBITION

The Duffy Collection

2 May-4 June White Cloth Gallery, 24-26 Aire Street, Leeds LS1 4HT. Tel: 0113 218 1923. Website: www.whiteclothgallery.com. Open Mon-Sat 11.30am-8pm. Admission free

THE LATE Brian Duffy produced a wealth of iconic fashion and commercial photography throughout his long fruitful career, and among some of the most famous were his images of David Bowie, assembled for this exhibition. Taken between 1972 and 1979, Duffy's images document Bowie's visual and artistic reinvention, and include some of his most iconic album covers. However, a number of the candid behind-the-scenes images of Bowie prove even more interesting than the outlandish costumes and make-up for which he became notable, showing the person behind the fame and the artifice. The close, trusting relationship between the photographer and his subject is self-evident, and it really adds something to the photography. Fans of either Duffy or Bowie should find something to enjoy here.



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Miles Aldridge: I Only Want You To Love Me

By Miles Aldridge. Rizzoli, £46.50, hardback, 288 pages, ISBN 978-0-8478-4036-6

THE HEIGHTENED

candy-coloured artificiality of Miles Aldridge's images is what gives this book more depth and interest than other collections of fashion photographs.

Although a veneer of gloss sits over Aldridge's robust appreciation of the female form, there is a playfully dark streak that is intriguing to view. The lavish trappings of consumerism that

frequently surround the models accentuate the glassy, deathly facial expressions that Aldridge coaxes out of them.

An intriguing extra comes at the end of the book, in the form of a selection of Aldridge's conceptual sketches for his images. While he's clearly more comfortable with a camera than a pencil, it is interesting to see how little some of his images changed from concept to execution.



BOOK

BOOK

BOOK

Mighty Silence: Images of Destruction

By Yasushi Handa. Skira, £48, hardback, 261 pages, ISBN 978-88-572-1557-0

THE TSUNAMI that struck Japan in March 2011 was a tragedy on a near-unprecedented scale, causing a staggering loss of life and untold damage. Photographer Yasushi Handa ventured out 20 days after the event to record the aftermath, and then again 18 months later.

Handa's desaturated colour palette reflects the pervasive feeling of despair, as wreckage litters the countryside while often a caption lends startling poignancy; it's chilling to be informed that 'There was a town here.' A potent reminder of a disaster whose effects are still being felt.



socialdocumentary.net

THIS site aims to be a resource for photographers wishing to promote work that in some way reflects or investigates issues facing our world today. More than 700 galleries, or 'exhibits', are available, including stories from around the world. Construction workers in Iran, festivals in India, refugees from Turkey – browsers will find much to lose themselves in. For those wishing to promote their own photography, having an exhibit of your own does require payment, and is subject to the approval of your images by the Social Documentary team. While you should always think carefully before paying to use a promotional tool,

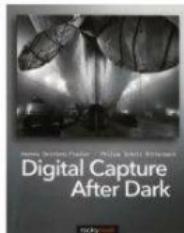
if you want to see some great contemporary photography then this site is a good stop.



WEBSITE

CONDENSED READING

A round-up of the latest photography books on the market



● DIGITAL CAPTURE AFTER DARK

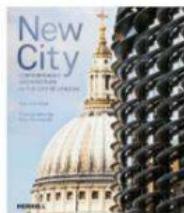
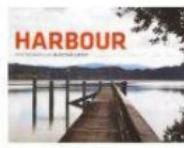
by Amanda Quintenz-Fiedler and Philipp Scholz Rittermann, £30.99 Although night and low-light photography can produce stylish, interesting images, the techniques involved can be tricky to master. The authors of this book have plenty of solid advice on low-light techniques, including how to get the best exposures and what approaches to take at different times of night. The quality images featured throughout should help inspire budding night photographers.

● HARBOUR

by Alastair Grant, £44.50 While expensive for what it is, this book features some gorgeous photography of natural harbours on New Zealand's North Island. Grant photographs not just the seascapes and coastlines, but also the structures and communities that have sprung up around them, and this makes the book a lovely treat for those hankering to travel to New Zealand.

● NEW CITY: CONTEMPORARY ARCHITECTURE IN THE CITY OF LONDON

by Alec Forshaw and Alan Ainsworth, £19.95 Some good architectural photography from Alan Ainsworth illustrates this thorough look at the buildings of London, ensuring that the reader never lacks context for what is being discussed. Tackling the capital area by area, author Alec Forshaw discusses the buildings on show without getting too esoteric, keeping the book accessible for those without a degree in architecture.



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Letters

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LETTER OF THE WEEK



RED OR BLACK?

Many thanks to Tim Coleman for his excellent review of the Fujifilm X100S (AP 6 April). It is a camera that definitely appeals to me, and it might be the digital replacement for my long-ago-sold Contax T2, for which I have been looking and hoping for many years.

I noticed his comments concerning the focus-peaking display and the suggestion that the black line should be replaced by perhaps a red one. I can see his point. In the illustration showing the black line, the line is virtually invisible. I had to look really hard to find it. However, I and many others have impaired colour vision to red. I would not be able to see a red line! So I do hope that Fujifilm will not replace the black line with a red one. A blue one would, on the other hand, be fine for me and other fellow sufferers.

I once had a Contax S2. It was a wonderful, very expensive, jewel-like, fully mechanical camera. I thought at the time that I had found my 'dream camera', but the metering display was red on blue. I found that I could not see the red display and I had to sell the camera. It was the same with PowerPoint presentations at work when the presenter provided slides of red on blue that no doubt looked very clear to him, but I could not read the red part.

Impaired colour vision is something that is often overlooked by the non-afflicted. I manage as a photographer by asking my wife if the colours are OK, although I do find surprisingly that despite the affliction, which also affects green, if it looks OK to me it usually is OK to others. I could switch to greyscale, of course, but I like colour! I hope that Fujifilm might take that on board and 'simply' provide a more visible black line in a firmware update. **John Strain, via email**

EXTRA ELECTRO

I thoroughly enjoyed Ivor Matanle's article on the Yashica Electro 35 GTN, way back in AP 19 January. However, I have one that does not appear in his history of the range. I bought it new in the early 1970s, or perhaps even earlier. It is a Yashica Electro

35 CC in black (with odd-shaped Cs), with a 35mm f/1.8 Color Yashinon DX lens in a Copal shutter. The top-plate has a basic shoe attachment, lever wind, release/lock and frame counter. The back plate has the rangefinder eyepiece, battery access and red battery check that lights on the front

What The Duck



<http://www.whattheduck.net/>

plate. Its reference number is 10405991, and a flash connection is on the side of the back plate. I would be grateful for Ivor's comments.

Mike Plant, via email

I am glad to hear that you enjoyed my article on the Yashica Electro 35 series. This was originally conceived as an article covering simply the developing line of cameras with the 45mm f/1.7 lens, from the 1966 introduction of the world's first electronically controlled camera, through the Electro 35 GT and GS to the Electro 35 GTN. This in itself is a complex story, which effectively filled the space I had available. As I worked on it, a friend produced his Electro 35 GX, which, while not part of the originally intended content, obviously merited inclusion since it bore a similar name and was, in many ways, a superior camera.

However, a whole series of earlier, compact Electro 35 cameras, including your memorable Yashica 35 CC with that 35mm f/1.8 lens, of outstanding quality, was not included because it was not a part of the original intended content and the space was simply not available.

I agree that this was, in a way, unfortunate. The Electro 35 CC was and is a fine camera, although sometimes subject to similar reliability problems to those that I discovered are endemic to the main Electro 35 line. Good examples in working order are selling for as much as £200 on eBay. But there is a limit to how much can be included in a three-page article – **Ivor Matanle**



SMALL VS CLOSE-UP

They were some nice photos from Marek Mis in AP 6 April, but they were not 'microphotographs' – they are 'photomicrographs', which are entirely the opposite! Above is an approximately 100-year-old photomicrograph (the tiny rectangle under the circular coverglass) made by JB Dancer, a master of the art, and mounted on a 3x1in microscope slide. **Spike Walker, via email**

Thanks for the letter, Spike. We aim to showcase as many interesting types of photography as possible and, with the rising popularity of contests like Nikon's It's a Small World, we felt Marek's work was of interest. I'm sure you'll agree on this, no matter what we call it! – **Debbi Allen, deputy editor**

CHEERS OR JEERS?

Entrepreneur Peter Jones must be a man of strong persuasion as well as wealth to bring back Jessops (AP 13 April), assuming that

IN PRAISE OF BRIDGES

Over the years I have followed the development of bridge cameras and so was intrigued by the group camera test looking at them in AP 30 March. Before affordable DSLRs were on the scene, I stuck with a series of Fujifilm bridge cameras running alongside my film SLR. For 40 years, as a biologist and naturalist, I have tried to photograph close-ups of wildlife. Around 14 years ago, Fuji introduced first the FinePix 4900 and then the FinePix S602 – both brilliant bridge cameras that allowed me to couple an old 1960s Minolta 58mm f/1.4 lens reversed on the front. By zooming the Fuji, it would produce excellent 4x magnification with reasonable working distance and depth of field. The red ant photo below was taken with the 4900.

I had coupled lenses before with the SLR, but never with the success of bridge cameras. I have used this technique in the field all around the world, resulting in many thousands of photos that otherwise would have been impossible. For focusing, I switch the camera into manual and move it backwards and forwards. The S602 had a 'pixel magnifier' that could be enabled, enlarging the centre of the screen so that focusing was as sharp as possible. For fear that the camera would one day stop working, as by 2004 the back of the S602 had lost all markings and paint, I bought several second-hand ones as I saw them, none more than £50. However, the original never failed and still works today.

Having said that, gradually the bridge was used less and less until I could afford a Canon EOS 7D with a 65mm MP-E macro lens and twin macro flash. For years I have run macrophotography courses and these are now the only time the S602 sees the light of day. It never ceases to amaze people. Viewing the AP poll in that issue and online, it is sad that not everyone can see that the bridge camera does have a place. Just a few years ago we were told that they were in decline, but happily it looks like they are thriving once more.

**Julian Cremona,
Pembrokeshire**



more people want to cheer than jeer at the move. What will be interesting in the coming months is the unfolding trading pattern, hopefully better than the one that put the chain into shackles in the first place. Quite clearly, a copycat version will not answer the critics, and neither will a straightforward challenge to other established names, especially as there will be fewer shops in operation to compete as widely.

Perhaps Mr Jones might take some advice instead of just dishing it out in a style to suit the television cameras. Here are a few points he could consider: ensure staff have proper knowledge for the tasks given them – it's called training; ensure any offers represent decent value and are not just gimmicks; and recognise that customers have a free choice when it comes to how and where they spend their money. Good customer care goes way beyond cash counting.

If he can score highly on tests of credibility, trust and confidence, he might see support returning, while the adage 'once bitten, twice shy' lingers in the minds of those holding any cause for concern.

Eric Malik, Staffordshire

PROGRESS AND CHANGE

James D Brown says there is no stopping progress (Letters, AP 30 March), but he is confusing, in part, change and progress,

which are not the same. Progress often depends on how beneficial the outcomes are for a majority of people before it is widely acclaimed.

In the case of some independent photographic retailers, change has overtaken them and they cannot or will not adapt to new circumstances. They become anticompetitive because they do not have the buying power of their modern competitors handling more throughput, and are unable to negotiate from a position of strength. Add to this disadvantage the growing impact of higher rents and business rates, and the mix soon becomes toxic, resulting in higher selling prices for some but supported by personal service as a bonus, some believe.

Levels of photographic knowledge may have an influence, too, when novices seek assurances locally about spending money on something they do not really understand. The counter to that is the ready supply of online information, as stated, and perhaps the knowledge spread among close friends.

Many of the retailers were probably founded decades ago and are now operated by a different generation. The old saying that the first generation builds it, the second generation spends it, and the third generation sells it, seems to be gaining a renewed truth in current times.

Greg Lewis, via email

BACK CHAT

AP reader Michael Taylor disputes the notion that 'real' images are only achievable with film and a darkroom

HAVING read Ian Shore's *Backchat* column decrying digital photography and photographers who use digital equipment (AP 9 March), I want to say that I too, like Mr Shore, was a serious amateur photographer, using everything from 35mm to 5x4in formats, and I had my own well-equipped darkroom. Many of my pictures have graced the exhibition walls of national and international salons, and have been featured in lots of photography magazines over the years. Like Ian Shore, I too curtailed my photographic activities, in my case to concentrate on writing (I now have eight published novels to my credit). I have always maintained an avid interest in photography, however, and in the past year or so have taken it up seriously again as another hobby.

It is a bit of a sweeping generalisation for Mr Shore to infer that photographers who use digital equipment are lesser mortals than he, and I resent his arrogance. I, for one, am in awe of the possibilities already available to us all to digitally improve photographic images. Computers and photo-editing software are useful tools by which we can achieve this, and are far preferable to swishing round with evil-smelling chemicals in a room lit only by a dim red lamp, and wasting no end of expensive photographic paper and chemicals trying to develop the perfect print, which then had to be dried on a glazer, if you were lucky enough to have one.

When I bought a roll of 35mm film I was limited to 36 shots, but with an appropriate memory card that limit has exploded to several hundred, so I can afford to take many more shots and simply discard the rubbish. Yes, I can actually afford to experiment, even if the result is rubbish, but there's always the chance that something brilliant might appear. I used to have to carry two Canon A-1 bodies, one for colour slides and one for black & white film. Now I don't. And why carry a light meter to Kathmandu when a modern digital camera will give perfect exposure every time?

As a serious photographer, I do not rely entirely on my computer and Photoshop to 'fix' my images, although these devices do help to improve tonal range, contrast, dodging, burning, cropping, and so on, to the betterment of the picture – and what's wrong with that? Isn't that what we were trying to achieve in the darkroom? Did we never do any image manipulation in the darkroom? Of course we did.

My point is that any decent photographer will first 'see' his picture before he presses the shutter, and think about tweaking it further afterwards, irrespective of whether he's using digital equipment, or film and a darkroom. It's maybe just as well we don't all think like Ian Shore, otherwise we'd probably still be watching 12in monochrome TVs outputting 405 lines, or perhaps still using candles to light our way instead of electricity.

PHOTO INSIGHT



JIM BRANDENBURG
For more than 30 years, Jim Brandenburg travelled the world as a photographer with *National Geographic* magazine. His work has been published in *The New York Times*, *Life* and *Time*, among others, and he has won numerous awards, including Kodak Wildlife Photographer of the Year by the Natural History Museum and *BBC Wildlife Magazine*. He is the chair of this year's competition. Every month Jim will share the story behind one of his nature images

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To see more of Jim's images visit www.jimbrandenburg.com

Jim Brandenburg explains why he took his image of avocets in flight and how Eastern philosophy has influenced his practice

THIS image was taken within the past two years during a visit to Brittany in the north-west of France. The birds you see here are avocets. It's not immediately obvious what this shot is trying to show. I don't mean it's confusing, but that you need to really focus in on it and consider what you're seeing. That's a nice element of this image. It requires repeated viewings to truly appreciate what's going on, but once you have it you're still drawn into the graphic nature of the birds' formation.

This is an image that is very much about form. At first the cluster of birds looks almost like a puzzle. Shooting images like this is a technique that I often employ to arrest the viewer's attention, as well as my own. This goes way back to my days as a painter, where I would never paint my subject in a literal light – there was always some kind of an abstract element. That's something I like to achieve through my use of a camera.

With this in mind, there are two levels to this image. You have the graphic formation – the shape – and then you have the fact that they are black & white birds against a white sky, which gives nice contrast. It was shot using a Nikon D3S and 500mm lens.

I've talked before about how some of my best shots have been a matter of luck. Sometimes I'll find myself in a position where all the elements align to give me the perfect image. Often this occurs in just a matter of seconds, and if I delay I'll miss the shot and never be able to get it.

This was most definitely *not* one of those occasions. It was an absolutely terrible day to shoot as the weather was miserable. I thought it was going to be impossible to get a picture. All I could do was just shoot and shoot. I actually took a number of shots to get this image, although I didn't realise I had it at the time.

During the editing stages, I happened upon this one image that held my eye. The more I looked at it, the more it engaged me. Once I'd added a little contrast in Photoshop, I knew I had the image I'd been looking for.

There are very few pictures that I've shot in my 40-year career where I've fired the shutter and known that I had something in



© JIM BRANDENBURG

the bag. There have been a few, of course, but more often than not my best shots are a surprise. That's one of the most exciting things about photography. It's rare that you fully appreciate what you have until the editing stages. I was looking for the perfect shape and in that group of shots I managed to find this one that did everything I wanted it to.

Even with all the experience that I have as wildlife photographer, and as someone

who has spent their entire life around nature, sights like bird formations still carry an air of mystery. That synchronisation is such a fine-tuned instinct and I'm still in awe of it.

As I've said before in previous *Photo Insights*, I'm a regular judge on the Veolia Environnement Wildlife Photographer of the Year competition. Year after year we receive these mind-blowing images of synchronised bird flight, often featuring starlings. That's particularly intriguing to



me because we don't have these birds in the US where I live. The starlings come together and fly into ball formations. It's remarkable and there truly is nothing else like it. Perhaps the closest equivalent you'll find is fish shoaling. I've never been fortunate enough to see a synchronised starling flight in person, but I understand it's a breathtaking spectacle.

The majority of my shots have dealt with the idea of minimalism. I've worked with that

idea for so long that it's an intuitive process now. In some ways I feel that I do my best work when I think about it the least. That's an idea that largely stems from the influence of a more Eastern way of thinking. In Japan, the famous calligraphers will sit in front of a blank sheet of paper and with one broad stroke of the pen or brush they will create a work of art. They don't explain it – they just do it. It's very Zen.

People sometimes observe that there's

a clear Eastern influence running through my work and that's incredibly important to me. I've spent a great deal of time in Japan. I'm very heavily influenced by Japanese minimalism and have studied the Japanese aesthetic for many years. It's not just visual – it's emotional and philosophical. It's something that influences a lot of what I do and it has taught me to work on a subconscious and instinctual level. I owe a lot to that way of thinking. **AP**

Jim Brandenburg
was talking to
Oliver Atwell

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The Nikon SP (P stands for professional) was introduced in September 1957 and was their finest and most innovative rangefinder camera. The viewfinder of the SP has the most comprehensive ever made. It provides projected parallax corrected frame lines for the 50, 85, 105 and 135mm lenses that can be selected by a rotating dial under the rewind lever, and a second built-in optical finder next to the viewfinder eyepiece with parallax marks for 28 and 35mm lenses. Shutter speeds from 1 to 1/1000th sec., BT and T, the addition of a delayed action, a self-timer (the first Nikon to do so), a motor drive coupling lug to accept the S-36 and S-250 motor drive units. Weight: 720g. It is fitted with a 5cm f/1.1 Nikkor-N. This lens was introduced in February 1956 and first shown in Tokyo in May of that year. Aperture range f/1.1 – f/22, Angle of view 46°, 9 elements, focusing range (0.9m) to Infinity, filter size 62mm, weight: 12.25 ounces. According to factory records, the total production was 1,046 consisting of 835 in Nikon bayonet mounts and 211 in a Leica screw mounts.



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CORRECTING AN UNDEREXPOSED IMAGE

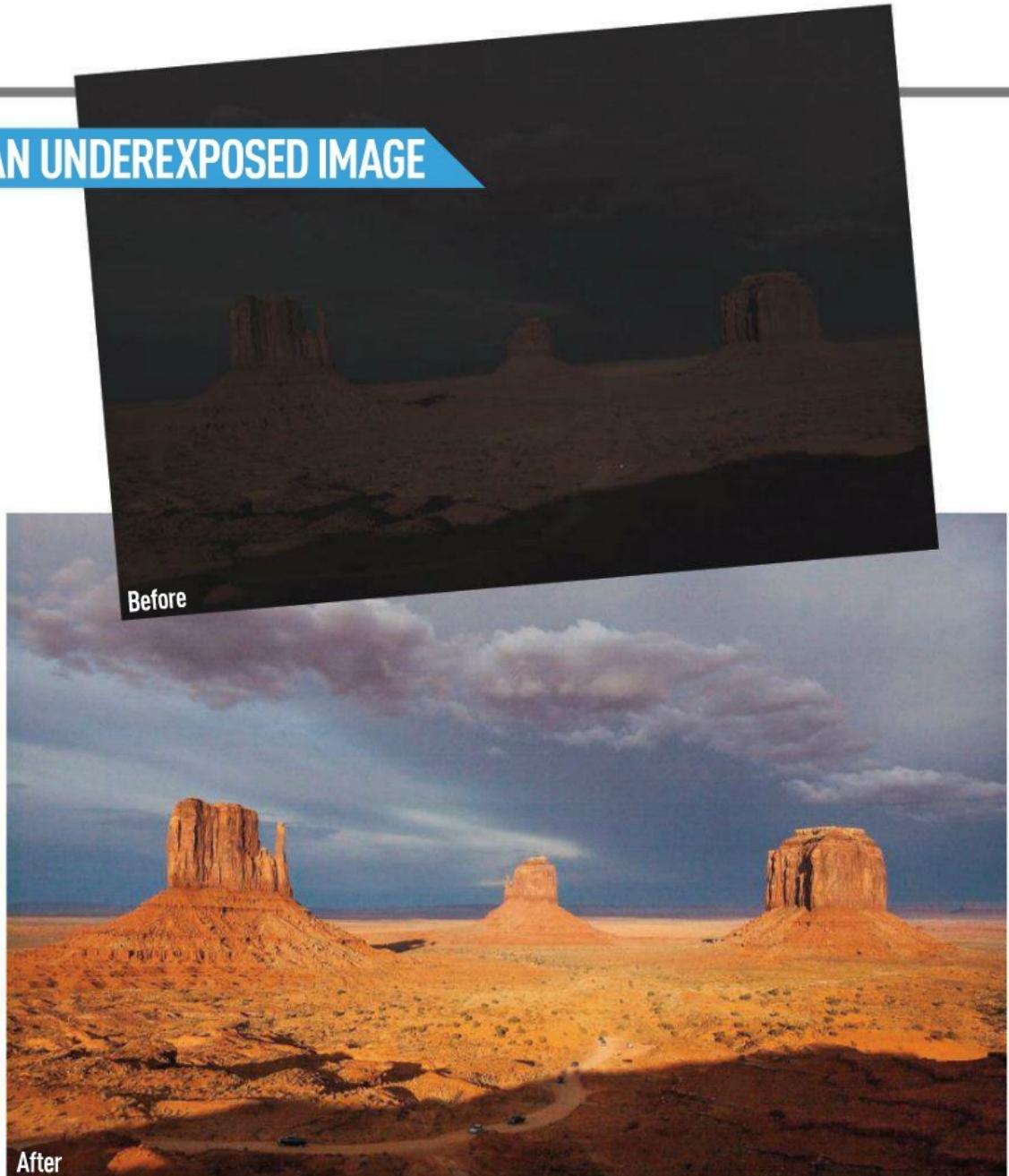


MARTIN EVENING

Martin Evening is a London-based advertising photographer and noted expert in both photography and digital imaging. As a successful photographer, Martin is well known in London for his fashion and beauty work, for which he has won several awards. In 2008, he was inducted into the NAPP Photoshop Hall of Fame.

Martin has worked with the Adobe Photoshop and Adobe Lightroom engineering teams over many years and is one of the founding members of Pixel Genius, a software design company producing automated production and creative plug-ins for Photoshop.

His recent books include *The Adobe Photoshop Lightroom 4 Book*, *Adobe Photoshop CS6 for Photographers*, as well as the *Adobe Photoshop for Photographers: The Ultimate Workshop* series, which he co-wrote with Jeff Schewe.



Martin Evening's Retoucher's Guide

Martin Evening explains how to correct an underexposed digital image using Adobe Camera Raw

IN THE old days, if you underexposed a film you had to do what was called 'push processing' at the developing stage in order to lighten a transparency enough for viewing, or to create a negative that could be printed reasonably well. With digital technology, the camera exposure is quite critical since you don't always have the same degree of exposure latitude as you had with film emulsions. Even so, it is still

possible to carry out quite amazing rescue work on incorrectly exposed images.

With the photograph you see here, I wanted to show how Process 2012 image processing in Adobe Camera Raw (as included with the latest versions of Photoshop and Photoshop Elements) can be used to lighten a dark original capture dramatically. I selected this photograph, which is part of a bracketed exposure

sequence, to show just how much detail it is possible to recover from a severely underexposed image. However, this applies only to raw images. If you have a badly underexposed JPEG, there is little you can do. Even in the case of raw files, how much you can successfully recover from an underexposed photo will depend on the quality of the sensor. In the past five years or so, sensor technology in DSLRs has seen a huge improvement in the handling of noise. With older cameras from, say, ten years ago, the signature noise in the sensor will be a problem.



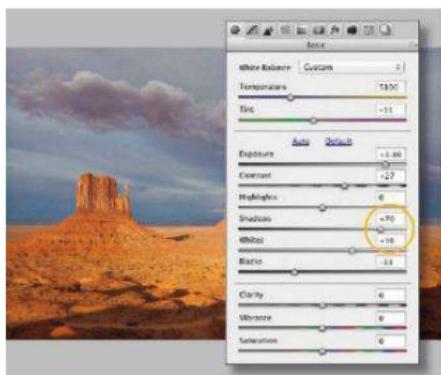
1 As you can see, the photo that I selected to work with is very underexposed. It may even appear almost completely black in print here, but you should just be able to make out some detail. For the following steps to work, it was essential that this photograph had been captured in raw mode.



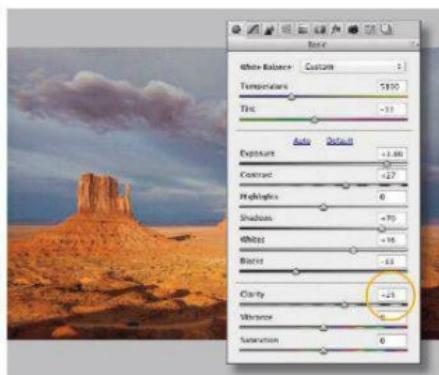
2 The first step is to use the Exposure slider in Camera Raw to lighten the image. This photo required a really big Exposure adjustment of +3.8EV to achieve the lightened version seen here.



3 The image is certainly looking a lot brighter now, but it is lacking in contrast. I used the Contrast slider to boost the overall contrast slightly, setting it to +27.



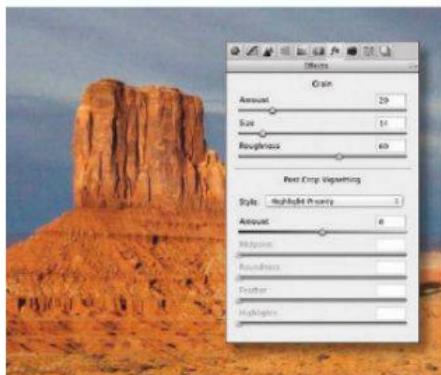
4 Although I have now improved the contrast, the shadows have started to clog up more. To address this, I used the Shadows slider to apply a lightening adjustment to the shadow areas, and used the Whites and Blacks sliders to fine-tune the end points and help expand the tones more.



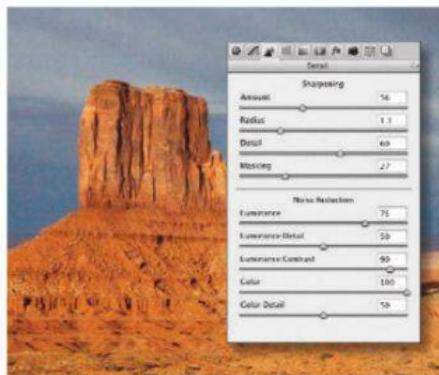
5 In this step I set the Clarity slider to +25, which helped add some more midtone contrast to the photo. Doing so emphasised the detail in the rocks in the distance, but without disturbing the delicate tonal contrast that I had set globally.



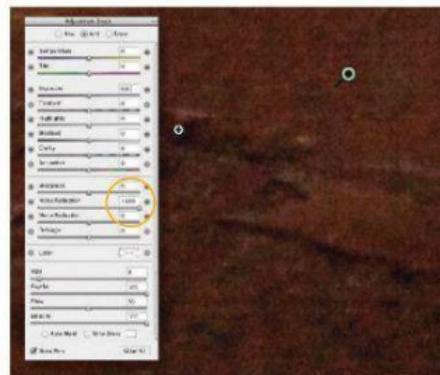
6 Having used the above Basic sliders to lighten the image, the downside is that it amplifies any noise present in the original. To combat this, I adjusted the Noise Reduction sliders as shown here to reduce both the luminance and colour noise.



7 With an image like this, where I have applied a heavy amount of noise reduction, it was inevitable that the noise removal would lead to a softening of the photograph. A trick I have learned here is to go to the Effects panel and add a small amount of grain by adjusting the Grain Amount slider and set the Size to a low amount.



8 After removing the noise and adding a small amount of grain, it was necessary to fine-tune the sharpening. In this step, I applied a relatively high Amount of sharpening with a high Detail setting, but also raised the Masking slider to help prevent the smooth areas of the image from becoming oversharpened, which might otherwise have made the noise artefacts more obvious.



9 The noise reduction that had been applied to the image globally wasn't completely effective, as can be seen in the shadow areas at the bottom of the picture. What I did here was to select the Adjustment brush in Camera Raw, and with the Noise slider set to +100, painted over the shadow areas in order to apply additional localised noise reduction based on the settings used in Step 6.

How to shoot...

Night skies

David Clapp aims us towards the night sky, explaining how to capture compelling astro and nightscape photography in the landscape

EVEN though the summer is fast approaching, there is still enough darkness in the night sky to head out and try an astronomical photographic shoot. While astrophotography may seem very complex at first, if you follow a few simple rules you can truly extend your photographic portfolio towards the heavens.

First, consider what you plan to shoot. Under a cloudless sky, it is very easy to stare upwards at the stars and feel totally overwhelmed. Yet what exactly is it possible to photograph? There are various constellations, galaxies and planets up there, but do we put these into a landscape context or raise our optics upwards?

Sadly, many of the most exciting astro features, such as nebulae and galaxies, are barely visible to the human eye. As they represent such a tiny portion of the night sky, isn't the only way to photograph them using a powerful telescope? Does that mean the heavens are really out of reach for the lowly DSLR owner?

The answer to both these questions is 'yes' and 'no'. As with most things photographic, it depends on how much money you want to spend. Clearly, if you have enough cash for specialist gear, you are almost certain to get spectacular images, but even those of us with a restricted budget can get pleasing results. The first thing to ascertain is whether you want to use the night sky as a backdrop for a landscape photograph, or if your intention is to go all out by peering into deep space. Consider the following options.

Stars in the landscape: This doesn't involve using any specialist equipment, but optics with wide apertures, such as f/2.8 primes and zoom lenses, will produce far better results than slower f/4 or f/5.6 lenses. It's all about the ability to gather light. Zoom lenses will also give far greater compositional variety. The landscape can look very black, with trees silhouetted, so a small amount of moonlight can help immensely.

Deeper into space: It is possible to use a portable astronomical tracking mount and a conventional DSLR without the need for

Right: Windy Post, Dartmoor, Devon.
A lunar corona is positioned behind the cross. Two shots were taken with different focal positions, as it was impossible to get the necessary depth of field with one shot. The cross was lit for 15secs from the right and 10secs from the left with a head torch
Canon EOS 5D Mark III, 17mm, 25secs at f/5.6, ISO 1600

a telescope at all. Although this conjures up thoughts of a car boot full of heavy equipment and computers, it's surprising just how portable these devices are. Some are simple tripod attachments, while others are more precise yet still highly portable. These can be used to make composite images of the night sky and the landscape with wider optics, with the larger ones taking much bigger and heavier telephoto lenses.

Infinity and beyond: For a truly astronomical result, photos of deep space come from a telescope and DSLR combined. This will take lots of heavyweight equipment, so most people have the set-ups at their house or at another permanent installation. Many astrophotographers run two systems – one that has the camera attached to the

telescope, with another separate camera and lens 'piggybacking' on top. It's inflexible, requires an observatory and lots of power, so this is for dedicated astrophotographers, rather than for those interested in the night sky in a landscape sense.

FEET ON THE GROUND

Let's consider the average kit bag that contains the cameras and lenses most of us have for landscape photography. Many modern digital cameras have great ISO capabilities, responding well to ISO 1600 or even 3200, so these models have a distinct advantage over past technology. If you live away from a city centre, why not step outside into the garden or travel to a nearby open space. Then choose a wideangle lens, set the camera to ISO 1600 and f/2.8 (or the widest aperture available), and point your lens skywards. Set the lens to manual focus and manual mode, and take a shot for 30secs.

When you view the resulting image, you will probably be astonished. The camera can see so much more than we can with the naked eye. There will be stars in abundance, all of varying luminosity. If it's dark enough, you may be able to see the Milky Way, too.

Now try taking another shot, this time in portrait orientation, with three-quarters of the image devoted to sky and one-quarter to land. You will see how the night sky can easily become part of a landscape photograph. Try this again



SETTING UP THE PERFECT SHOT



ONCE you've chosen the perfect location and checked that the weather conditions are favourable, set up your composition during daylight. Mount your camera on your sturdiest tripod and compose your scene. Try to include some foreground interest, such as a tree or building, but compose the image so that the photograph comprises two-thirds sky and one-third land.

Next, dial in your settings. A lot will be down to trial and error and depend on the kit you are using. Use a high ISO setting, with something around ISO 3200 being adequate. Take advantage of the largest depth of field your lens offers. To start, try a shutter speed of 30secs. You'll need to use a cable release or remote release to avoid any shake.

Once the skies begin to darken, take a test shot and adjust your scene and settings accordingly. You may wish to move your camera to account for the moon or any other astro objects, but this might be best done the following night.



 in a national park like Dartmoor in Devon, or in the mountains, far from the glow of a city, where the skies are often crystal clear.

A QUESTION OF FOCAL LENGTH

The longer the focal length of your lens, the shorter the shutter speed required. To freeze the stars and prevent star trails, the shutter speed should really be about 8secs for a wideangle lens. This can be extended to 30secs, but the stars will render as small lines rather than pinpricks. Many people starting out in astrophotography believe optics like an 85mm f/1.4 is ideal, but the extended focal length means that a very short shutter speed is required to freeze the action.

Picking out deep-sky objects, such as the Orion Nebula or the galaxy Andromeda, requires an extended focal length of way over 300mm. The only way to capture such faint objects with your DSLR is to use a precision-aligned astronomical tracking mount that turns with the rotation of the earth, but that's a complex business. Mounting a 600mm lens on a portable device requires a perfect set-up, perfect weather conditions and very dark, unpolluted skies. A 300mm f/2.8 can take really remarkable low-light photographs, but sadly it sits in that middle zone, being not wide enough to use in the landscape and not telephoto enough to pick out these smaller objects.

Crop-sensor cameras can help a certain amount, especially with composition, but the results can be very hit and miss. You have to ask yourself, 'Am I a landscape photographer interested in shooting at night?' or 'Do I wish to become an astrophotographer?'

CONSTELLATIONS AND THE MILKY WAY

 It's not easy to find identifiable stars to place in your landscape photograph, but there are two wondrous constellations that work again and

A cottage on the Isle of Eigg, Inner Hebrides, is illuminated by leaving the lights on and painting with light using a head torch from behind the camera. The Milky Way overhead adds something extra special

Canon EOS 5D Mark II, 24mm, 30secs at f/3.5, ISO 3200

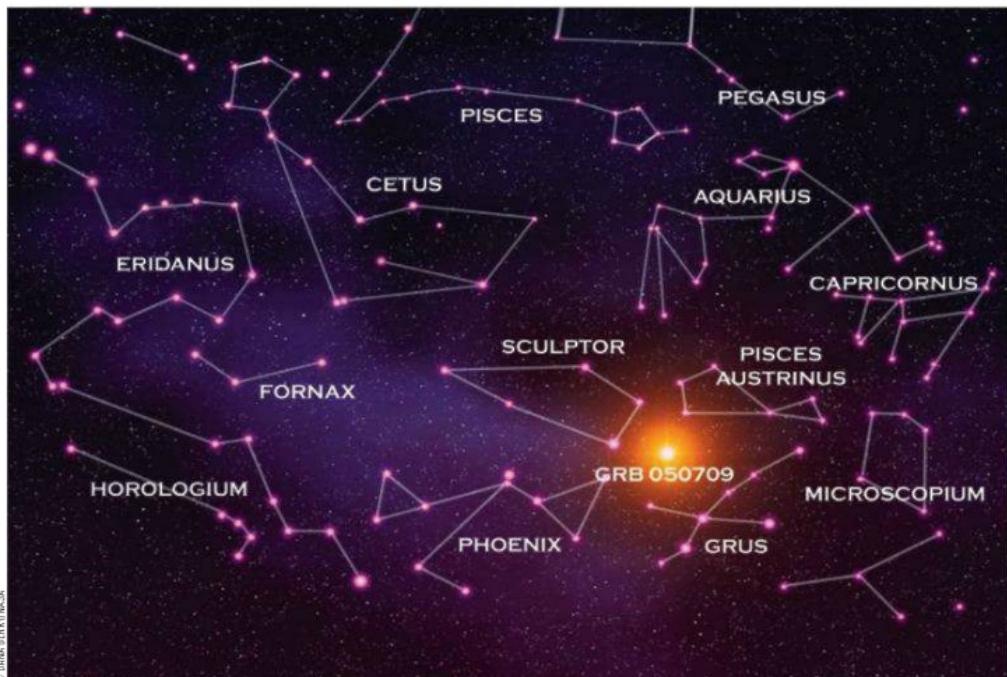


MOON CALENDAR

Take a series of shots and merge them into a panorama



WHY NOT set up your camera in your garden and take a photograph of the moon at every stage of its monthly cycle? Mark a spot where you will place the feet of your tripod to ensure that the shots remain consistent throughout the month. Increase the ISO on your camera and open up your aperture, then dial in a long exposure and start shooting. Once you have captured a series of shots over a month, open Photoshop and merge the images into a panorama. The photograph (left) shows nine phases of the moon's cycle on a black background.



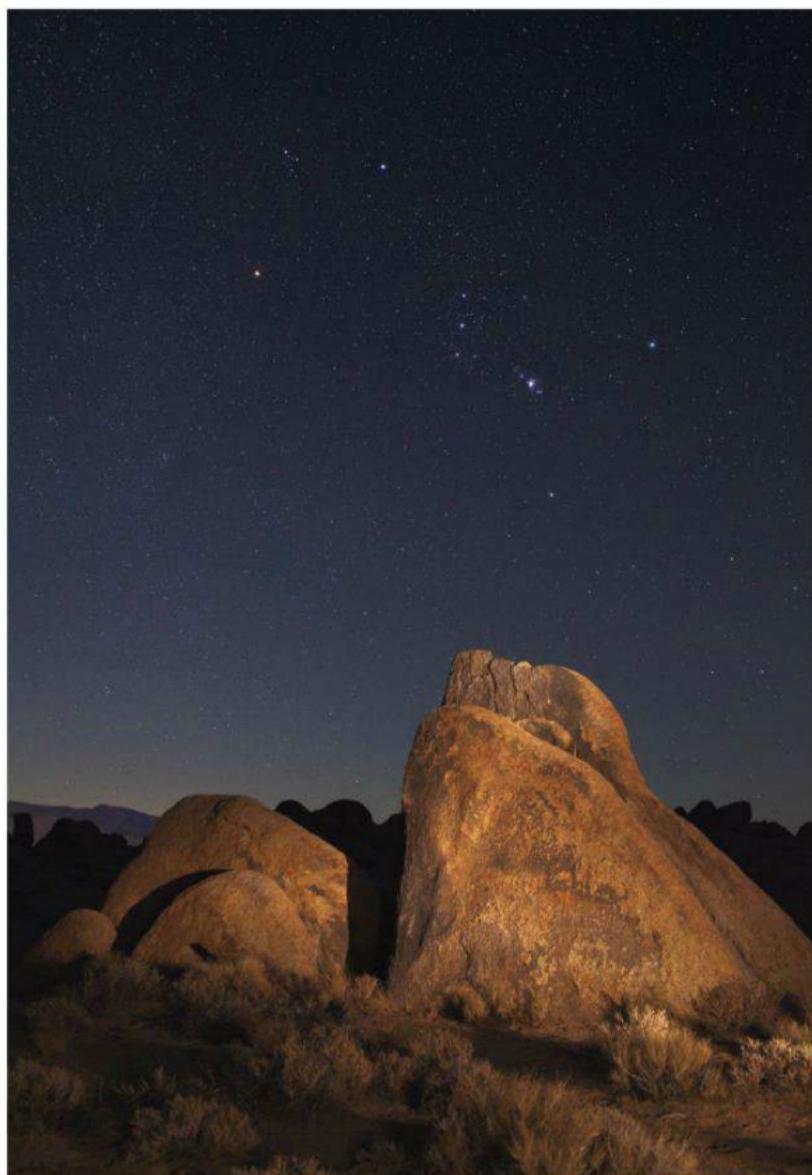
STAR CHARTS

Find out what you will be able to see in the night sky

THERE'S a lot of information about stars and their constellations available online. Find out which constellations you should be able to see from nasa.gov or www.astronomy.co.uk. There are also a number of apps available for download. The image (left) is a star chart showing the location of some of the best-known constellations in the night sky.



A composite image of the night sky in Lone Pine, California. It's a combination of a light-painted foreground (below left) and a tracked night sky (left), which renders sharp stars above the landscape
Canon EOS 5D Mark II, 35mm, 45secs and 2mins at f/5.6, ISO 800





DIARY DATES

Check out these celestial events during April...

21-22 April

Lyrid Meteor Shower

The Lyrids produces about 20 meteors per hour at its peak. It is formed from dust particles left behind by comet C/1861 G1 Thatcher, which was discovered in 1861. The shower runs annually from 16-25 April. It peaks this year on the night of the 21st and morning of the 22nd. These meteors can sometimes produce bright dust trails that last for several seconds.

25 April

Full Moon

The Moon will be directly opposite the Earth from the Sun and will be fully illuminated as seen from Earth. This phase occurs at 19:57 UTC (Coordinated Universal Time) or 20.57 GMT.

25 April

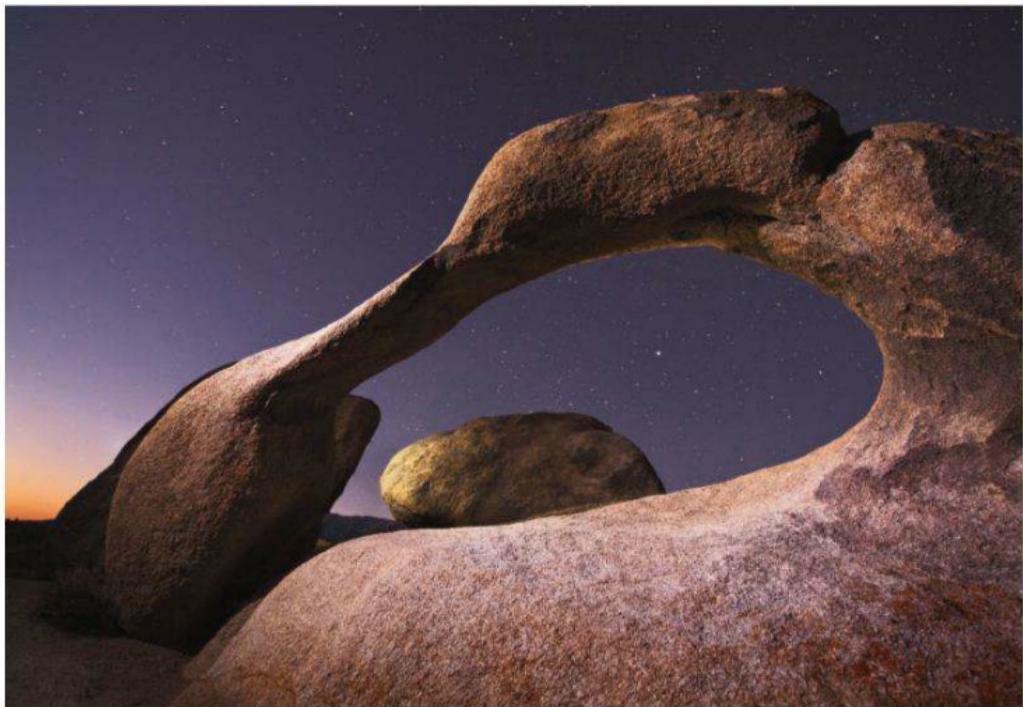
Partial Lunar Eclipse

A partial lunar eclipse occurs when the Moon passes through the Earth's partial shadow, and only a portion of it passes through the darkest shadow. During this type of eclipse a part of the Moon will darken as it moves through the Earth's shadow. The eclipse will be visible throughout most of Africa, Europe, Asia and Australia.

28 April

Saturn at Opposition

The ringed planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. This is the best time to view and photograph Saturn and its moons. A medium-sized or larger telescope will allow you to see Saturn's rings and a few of its brightest moons.



again. Ursa Major and Orion can be used with superb creative effect, filling parts of the sky in wideangle photographs with the recognisable pattern of stars. It's worth remembering that the wider the focal length, the more insignificant these become, so it's best to keep the focal length no wider than 24mm.

The darker the shooting environment, the more visible the Milky Way will be. This can work very well for wideangle lenses, as it provides a strong compositional element that extends diagonally across the picture. Many of the astonishing Milky Way shots that are popular on social networking sites and forums are pushed towards image destruction. The hi-res file is never seen, so it's worth remembering that this is a faint, dark-sky subject that is subtle and beautiful, unless expensive tracking equipment has been used to capture it.

DARK SKIES

The UK is certainly a bit of a conundrum. Although there are designated dark-sky areas scattered throughout the country, we suffer from unpredictable and unstable weather. Scotland is one of the best dark-sky areas, but nights with clear skies are few and far between, which can mean a very frustrating time for the astrophotographer.

Light pollution extends along the horizon, but although these seem like obvious areas to avoid when composing a shot, the pollution extends invisibly upwards, so it can go unnoticed. If you photograph a 5min exposure using a tracking mount, the skies will appear an unsightly orange in every direction. Shooting vertically upwards does reduce this, but it minimises the compositional possibilities. This is why observatories are located many miles from cities or other light sources, and why white mountainous regions, deserts and islands are favoured for astrophotography.

'Scotland is one of the best dark-sky areas, but nights with clear skies are few and far between, which can mean a very frustrating time for the astrophotographer'

A wonderful sandstone arch in Lone Pine, California. This was a trial-and-error combination of multiple angled light painting under a late-night sky. The light came from tree separate angles using two different colours
Canon EOS 5D Mark II, 14-24mm, 30secs at f/2.8, ISO 800

LUNAR PHASE

It is important to consider the position of the moon when heading out on astrophotography shoot. While the moon can create flattering effects on the landscape, just like the sun, it has a 'golden' hour. Moonrise and moonsets provide soft lighting that can help eliminate what would be a silhouetted landscape, but as it waxes towards full moon, fewer stars will be visible. A crescent moon can also make an important compositional element, to be framed along with constellations, so use its position to your advantage.

AND FINALLY

Today's incredible digital technology is helping us see the world as we have never seen it before. Cameras like the Canon EOS-1D X and Nikon D4 are so advanced and so clean in the upper ISO sensitivity range that they are capable of astounding night photography. Over the next few years, as these cameras come down in price, more and more high-tech features will filter down to less expensive models and thus become available to more photographers. Most modern DSLRs are very capable of opening the doorway into this fascinating photographic subject, but as usual it's about imagination, integrity and just how far you wish to travel. **AP**

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Andy Barr Buckinghamshire

Andy's first encounter with photography was with film, which unfortunately he did not enjoy. However, after receiving his 40 years' service gift from London Underground he bought a Nikon D80, and discovered that he appreciated the instant feedback of digital technology so began taking photographs in earnest. 'I enjoy taking any photograph that provides a technical challenge,' he says. 'It is photographing the unusual that I enjoy.' Despite the editing opportunities provided by digital imaging, Andy says he loves getting a technically accurate, well-composed photograph that doesn't require tweaking. Having photographed the aurora borealis, Andy's next project is to take some images of the aurora australis.



Line of light

The contrasting colours stand out vividly in this terrific shot

Nikon D3S, 14-24mm, 6secs at f/2.8, ISO 1600



Sweeping lights

1 Andy has obtained some gorgeous shots of a spectacular natural event
Nikon D3S, 14-24mm, 10secs at f/2.8, ISO 1600

Lights over forest

2 Andy has exposed well for the sky and the scenery in this challenging image
Nikon D3S, 14-24mm, 3.2secs at f/3.2, ISO 2500

Lights over wires

3 The upwards perspective and wide angle combine to create a spectacular image
Nikon D3S, 14-24mm, 10secs at f/2.8, ISO 1600

3





Adrian Pluskota Ireland

Adrian's first foray into photography was in the early 2000s, when he started taking pictures of his brother, who was a rally driver at the time. Although he freelanced in this field for several years by working for various Polish rally teams, Adrian's focus switched to landscapes when he moved to Ireland in 2007. Adrian now enjoys taking seascapes, as well as images of lighthouses and piers. 'I love being close to nature,' he says. 'I like to escape from all the daily stress and I like chasing for the perfect picture.' In the future, Adrian hopes to improve his post-processing skills.



2

Wreck in Louth

1 The vivid colour of the wreck stands out against the water and sky
Canon EOS 7D, 10-22mm, 0.8secs at f/16, ISO 100, tripod, polariser, ND grad

Eerie roadway

2 Sunrise and early morning fog give this image a fantasy feel
Canon EOS 5D Mark II, 70-200mm, 1.3secs at f/22, ISO 100, tripod, polariser

Beached boat

3 Shooting into the sunset has given this image a gorgeous colour tone
Canon EOS 7D, 10-22mm, 1.3secs at f/16, ISO 100

Old Man of Storr

4 Adrian did a great job of handling contrasting light for this shot
Canon EOS 5D Mark II, 24-105mm, 0.3secs at f/13, ISO 100, tripod, polariser, ND grad

3



4

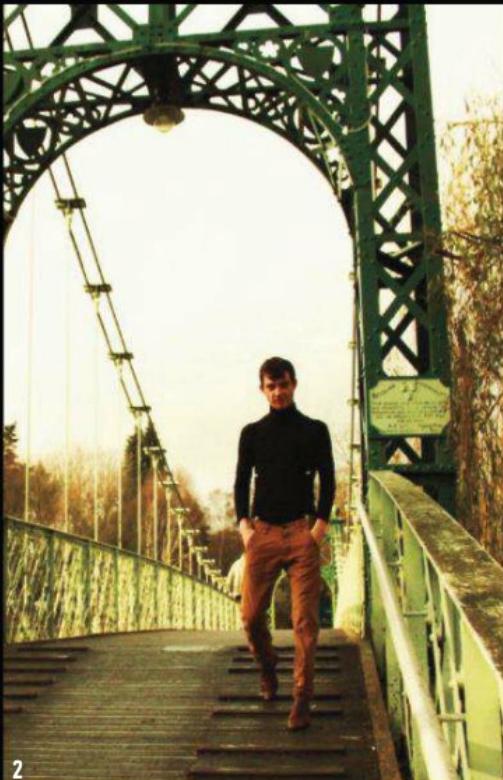


Adrian has shown great judgement in all his images by balancing the foreground and background interest, colours and atmosphere. I particularly like the contrast in this shot – *Debbi Allen, deputy editor*

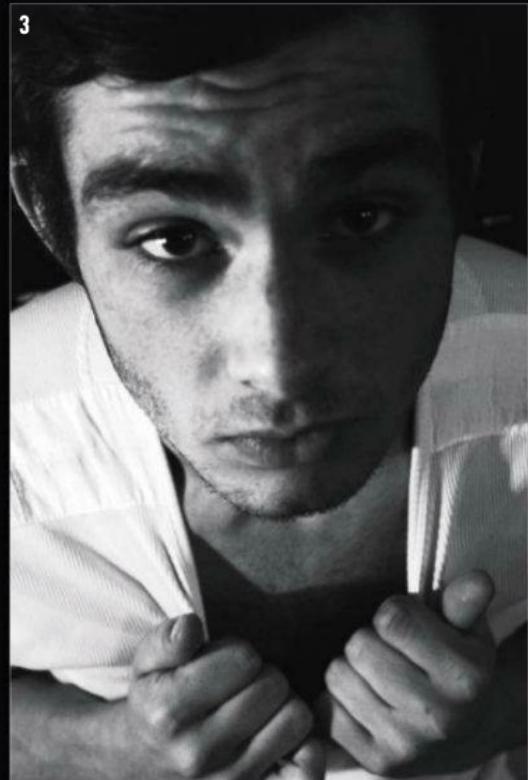


Stephanie Hornby
Shropshire

Stephanie discovered photography when she took the subject as a GCSE, and has since found herself frequently out on shoots in her own time. Her favourite subjects are portraits, performances and fashion, as demonstrated by the images on this page. However, she also enjoys shooting in the woods in Shrewsbury. Stephanie plans to go to university to study photography and use this as her first step to becoming a fully fledged studio photographer. To see more of her images, visit www.facebook.com/PhotosByStephanieMarie.



2



3

Bell Tower
1 The clever composition and high shooting angle make this image work
Canon EOS 500D, 18-55mm, 1/8sec at f/4, ISO 1600

Louis Morris,
Shrewsbury
2 This highly saturated image has a classically stylish feel to it
Canon EOS 500D, 18-55mm, 1/250sec at f/3.5, ISO 800

Louis Morris
3 Stephanie has used judicious lighting to give a moody atmosphere to this studio portrait
Canon EOS 500D, 18-55mm, 1/25sec at f/5, ISO 800

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Night vision

Steve Sharp explains some of the techniques he uses to take his wonderful low-light images. He reveals some of his tricks of the trade to **Oliver Atwell**

WORKING in low-light conditions doesn't have to be intimidating. Like any other method, low-light photography simply requires practice and learning a few tricks of the trade. Leeds-based photographer Steve Sharp is never happier than when he's peering down the lens on his camera into the dark with his flashgun and torch at the ready to illuminate the scene.

'Low light seems to offer more control, particularly if you're adding your own artificial light,' says Steve. 'Shooting in low light means working with longer exposures, so consequently you are working at a slower pace. That gives you more time to think about what you're doing, and you can decide how light or dark you want things. Dark conditions give you a blank canvas to play with, as you can decide which bits to illuminate and which bits to keep in the shadows. With daylight, you're relatively restricted.'

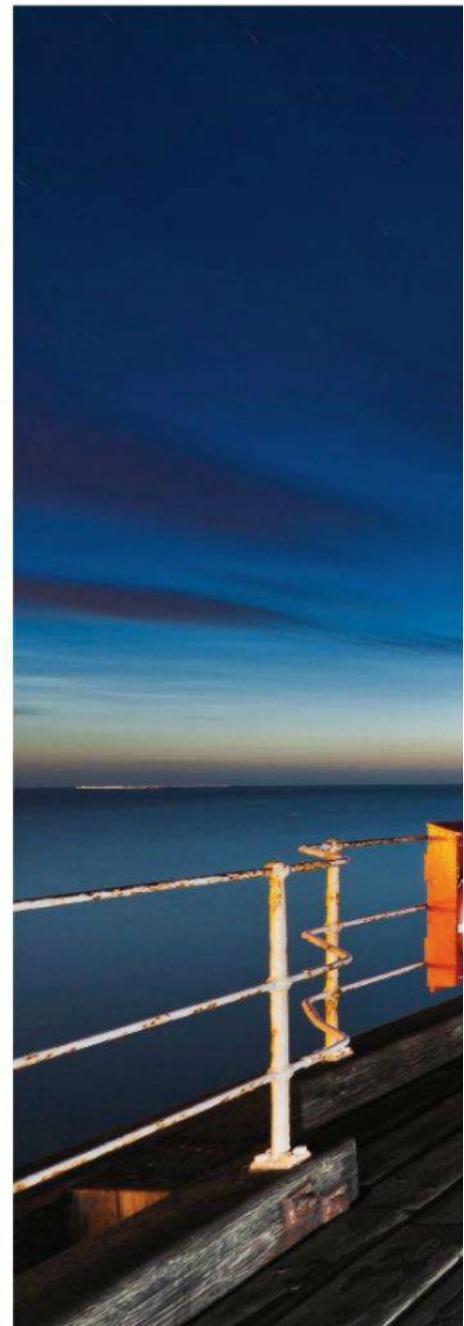
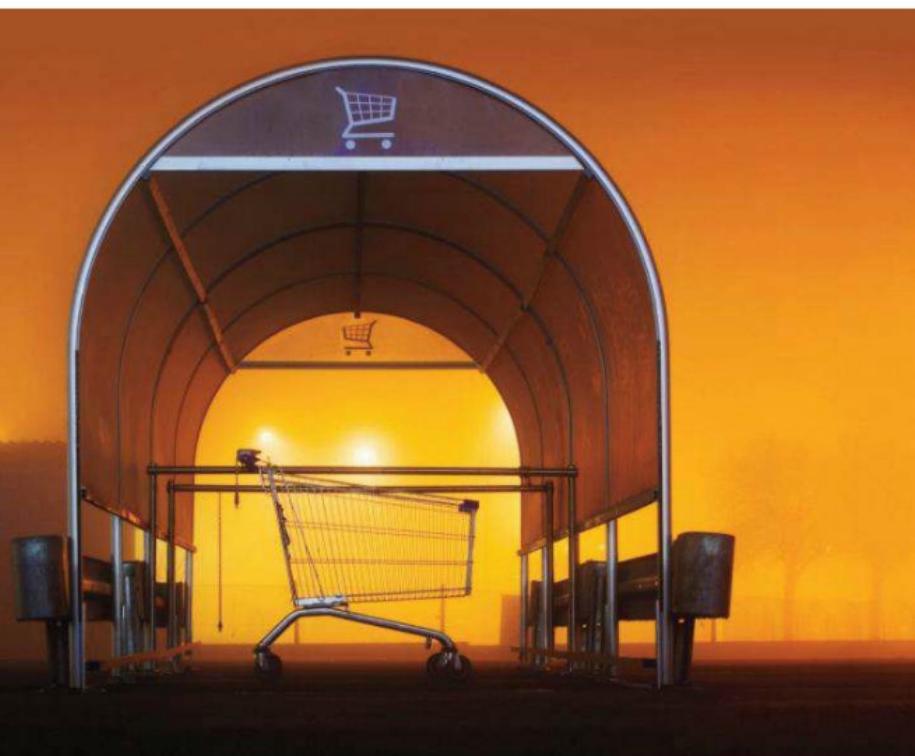
Shooting in these conditions means that Steve has two options: he can either go

into a scene to experiment or he can previsualise the shot.

Steve usually gets to his location early so he can find the best place to set up. He also decides which elements to bring out of the scene and where to place the light. 'In a lot of ways, I treat the scene as one large studio,' he says. 'However, on other occasions I've seen an area beforehand and had a long time to wait for the right conditions to unfold. It's different each time.'

One problem many photographers encounter is that producing images in low light, particularly ones featuring sky, can mean the presence of noise.

'Image noise will generally show up a lot in the sky,' says Steve. 'I don't worry too much about noise in terms of the subjects I'm shooting, as they will be lit appropriately or moving into dark shadows. I also shoot in raw and work in Adobe Camera Raw as this allows me to reduce noise simply by moving around a few sliders. It's a simple process and one that works wonders.'



Trolley park

◆ 'This shot was taken very close to where I live,' says Steve. 'One evening I looked out of my window and saw that fog had settled over the town. I already had an idea of the location that I knew would work, which was the car park of a supermarket. I ran down the road with my camera and immediately spotted this trolley. It was in the trolley park and I repositioned it in the way you see here. Then it was a question of setting up my camera and firing away. The colour has come from the sodium street lamps. You'll also see there's a subtle magenta light on the trolley park, which is coming from the supermarket behind me. It has massive magenta neon letters. What I particularly like is that the fog is acting as a giant softbox and diffusing the light. It has given the image a lovely atmosphere.'

**Guide**

'This photograph was taken using a technique that is a firm favourite of low-light photographers – light painting,' says Steve. 'I used a handheld Canon 550EX Speedlight flashgun to illuminate the guide. I flashed it twice, once from the left and then from the right. I stayed behind the camera and distanced myself slightly away so there would be no extreme glare on either side of the image. The boards on the pier were lit using an LED head torch. The torch has a spot beam mode and using that I was able to get low to the floor and skim the surface of the planks, moving from under the tripod up to the guides. There was also a subtle level of illumination that came from the arcades 500 yards behind me. That added quite a bit of warm light, which can be seen on the red life preserver to the left. The final exposure was 360secs. That's why the image looks almost as if it were taken at twilight and has such a dramatic background.'

**Power station**

◆ 'There are two elements to this shot, taken in a power station in the West Midlands,' says Steve. 'First, I took a few exposures using the available light. It looked very smooth, but then I realised I needed something extra to give the scene some punch. The exposure was 1/13sec, which was enough to blur the water, so I fired the flash during the exposure, which illuminated a lot of water drops. That gave it an interesting effect of water streaking through the scene.'

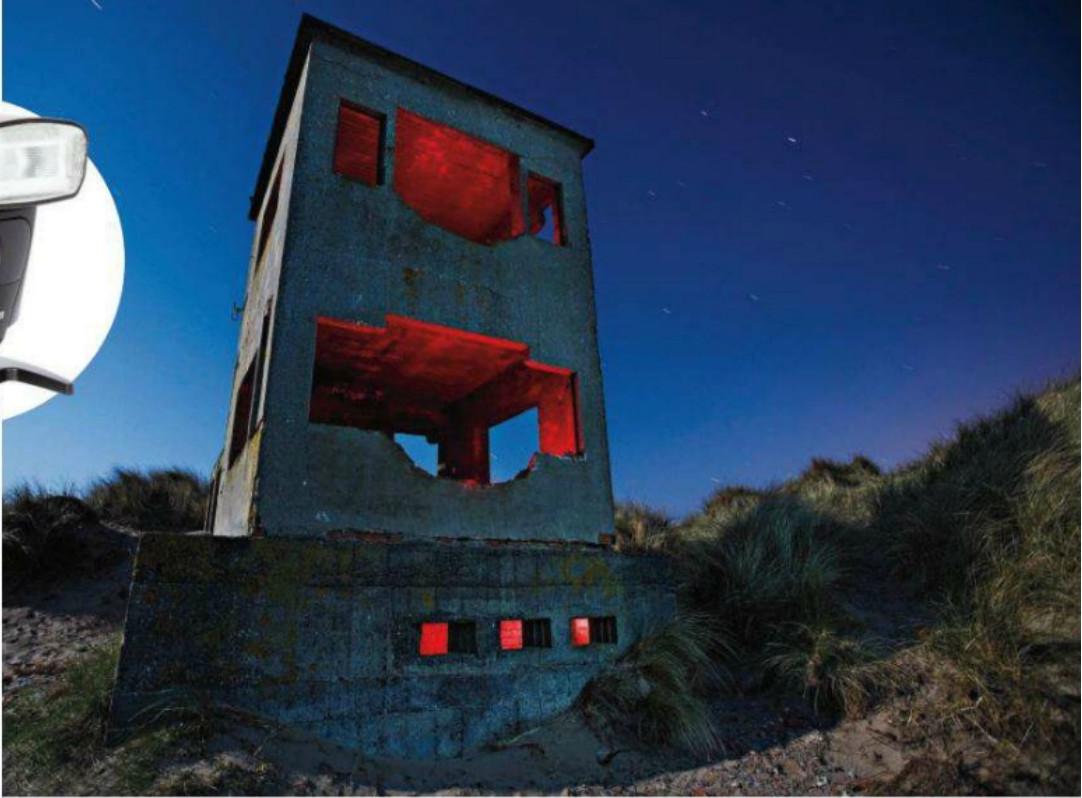
'Second, I used a tilt-and-shift lens that allowed me to achieve the perspective I needed to get to maintain straight verticals. This lens will enable you to transcend the normal restrictions of depth of field and

perspective, which is why they're used mainly in landscape and architectural photography. I set the camera up level to the background and then adjusted my lens settings. To get the bottom of the supports in the shot using a standard wideangle lens would have meant angling the lens down in such a way that it would have caused the verticals to converge. Using a tilt-and-shift lens, I was able to adjust the knobs to tilt the lens downwards to get the bottom of the supports, but shift it so that the shot remained parallel and straight on.'



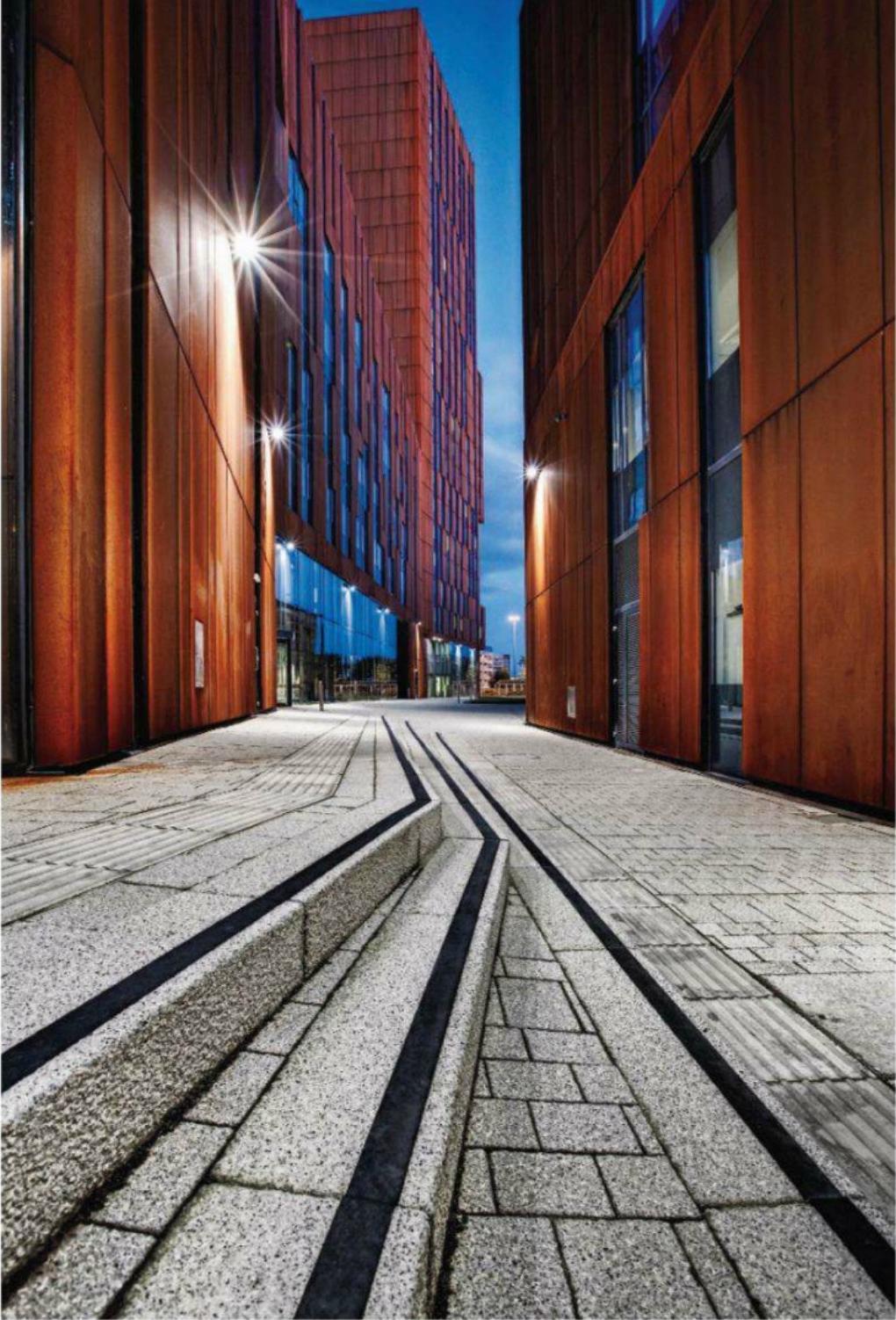
Pillbox

On the evening that this shot was taken the moon was around three-quarters full and was illuminating the scene beautifully,' says Steve. 'In the image the moon is in the ten o'clock position. The exposure was 194secs, which I worked up to through a series of test exposures. When I tripped the shutter I was standing on the dune to the right-hand side of the pillbox. I used the Canon 550EX Speedlight to light the front of the building. That was flashed four times. I then ran inside the structure and placed a red gel on the front of the flash. I lay on the floor and flashed up towards the ceiling, ensuring that all corners of the room were covered. I then ran up to the top floor and did the same. By the end I was exhausted. Three minutes isn't much time to run around in the dark.'



Coach garage

◆ 'This is another image taken in moonlight, and on this night it was particularly bright,' says Steve. 'This shot comprises two images, both of which are the same file. I took one shot and then processed the raw file twice. The sky was quite bright in the first shot, so I underexposed the first raw file to get a nice deep sky, which then left the shed underexposed. Then, on the second raw conversion, I brought the shed to a nice level where I could see the details. I then blended the two images together. The brickwork on the shed is very vivid. I also like the fact that you can see traffic trails in the background, and that's actually where some of the light in the image has come from.'



Street

◆ 'I don't often work with high dynamic range (HDR) images, but on this occasion I felt it was necessary,' says Steve. 'HDR has developed a bit of a bad reputation, but it has a genuinely practical purpose when used correctly. HDR allows you to capture the tones that the camera can't capture in one image. It could be that the dynamic range exceeds the capability of your camera, so you need a way of finding a greater dynamic range between the light and dark areas of your photograph. First, bracket two images by taking one exposure for the highlights and then one for the lowlights. You can then blend the files together in post-processing to get your final shot.'

'You'll often see HDR used in quite an exaggerated way for artistic effect, although I prefer a more subtle and practical

application. In this image it was a matter of bracketing by just 1 stop. It allowed me to retain some level of detail where the light is shining on the side of the building so it didn't blow out. Conversely, I was also able to include some details in the shadows. I could have produced a relatively good image without HDR, but using the process allowed me to take the image up a notch.'

'It is important to shoot raw files when you're working in areas that have man-made ambient light because the colour cast can look very unusual. By shooting raw files, I can adjust the settings in post-production and see what works best. Raw files are very flexible and are often a godsend when working with HDR because you need to ensure that the white balance in each of your bracketed shots is exactly the same.'

To see more of Steve's images, visit www.stevesharpphotography.com

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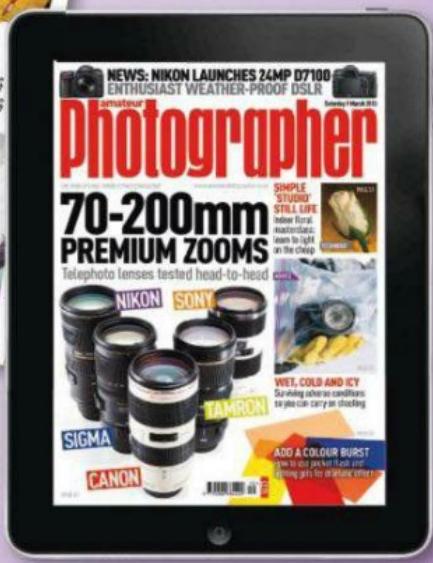
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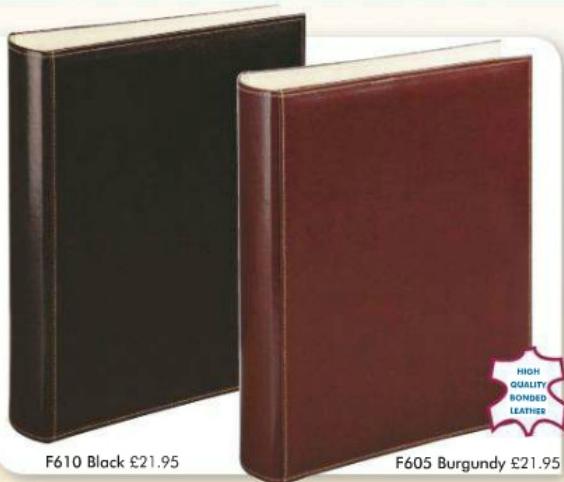
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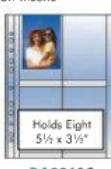
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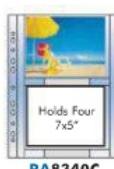
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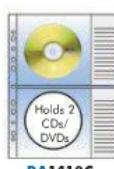
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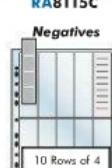
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Controlling digital noise

It is the bane of many digital photographers' lives, but what exactly is image noise, how is it caused and what can be done to reduce it? In this special issue, we explain everything you need to know

ASK ANY photographer what improvements they would like made to their digital camera and I'm sure they would place image-noise reduction quite high on the list. Even though sensor technology has improved dramatically over the past few years, image noise is still an inevitable part of digital photography. It doesn't matter whether your camera is a compact, a bridge model or a full-frame DSLR, at some point your photographs will suffer from image noise.

However, regardless of the type of digital camera you own, there are ways that image noise can be reduced, whether it is through software, changing your exposure settings or simply by understanding exactly how your camera's sensor works.

Over the following 12 pages we look at the best noise-reduction software and practical techniques you can use when capturing or editing images, as well as providing explanations of what causes this phenomenon in the first place.

We explain...

Chroma (colour) noise

40-41 Chroma noise is the term used to describe the random coloured pixels in an image. Colour noise increases as a camera's ISO sensitivity is increased. For more, see Professor Bob Newman's article on these pages.

Luminance noise

40-41 Luminance noise is akin to film grain. It is caused by light photons reaching the sensor at slightly different times, resulting in very slight differences between the exposure of individual photosites. For more information on luminance noise, see Professor Bob Newman's article on these pages.

Noise-reduction software

42-43 All raw-conversion software has the ability to reduce image noise. Colour noise is usually reduced by locating stray colour pixels and then reducing their saturation or altering the colour slightly to match a neighbouring pixel. Luminance noise reduction is quite destructive, because as the luminance of neighbouring pixels is matched, a smudged or blurred effect can be created. It is therefore often a case of less is more when it comes to applying luminance noise reduction. For more on using noise-reduction software, see Chris Gatcum's article.

Software applications

44-45 Third-party software extends the capabilities of an existing program, such as Adobe Photoshop, Elements or Lightroom. Noise-reduction software programs are available that offer an alternative, and sometimes an improvement, on the proprietary reduction features. Here, Vincent Oliver rounds up six noise-reduction software packages.

How to increase exposure

46-47 One of the most effective ways of reducing noise is to increase the exposure of an image. On pages 40-41, Professor Bob Newman explains why this occurs, while here, Richard Sibley provides a technique you can use to reduce this noise.

Long-exposure noise reduction

49-51 The longer the sensor is in use, the greater the chance of background noise becoming prevalent. When taking images with a long exposure, cameras will often use long-exposure noise reduction to reduce the effects of this background noise. For more on how long-exposure noise reduction works, read Richard Sibley's article.

**Professor
Newman
explains...**

The origins of noise

What is noise? Why does noise occur in digital photographs?

What can we do to get rid of it? **Professor Bob Newman** has the answers...

NOISE is a major problem in low-light photography. While there is a degree to which noise can be a friend if the aim is an atmospheric look, most photographers want to get rid of it. Here, I will look at the forms of noise, why they occur and the strategies for dealing with them when shooting and during post-processing.

WHAT IS NOISE?

Noise is simply a random variation of a signal from an expected value. The term arises from the hiss heard on early radio systems. Where there should have been silence, the radio operators heard a hiss, which they called 'noise'. The term became commonly used in electronics to describe the random variations from the perfect signal, and thereafter became transferred along with the electronics when photography went digital. In film there was 'grain', which is actually a completely different phenomenon, although it has some perceptual similarities. It's worth pointing out here that 'noise' is not something separate from the signal, it is a part of it. Noise is simply an observed variation of the signal, which is why it can't simply be 'sliced off'. There is no way to differentiate between noise and the signal, at least without prior knowledge of what the scene is. In the next three sections, I'll look at the three main sources of noise.

ELECTRONIC NOISE

Electronic noise, often called 'read noise', is the result of the electronic circuitry in the camera adding noise to a signal passing through. It is caused by the randomised release of electrons, which increases as the circuitry gets warmer. Many people think this is the major source of noise in a camera, but in fact in modern cameras it is very small. It is also not dependent on the signal, as it remains at the same very low level whatever the brightness of the image. The result of this is that electronic noise is soon swamped by any brightness in the image. Therefore, it mainly inhabits the shadows (see figure 1).

With some cameras, the amount of electronic noise relative to the signal decreases as the ISO control is turned to a higher setting. This is non-intuitive to many photographers, who feel that electronic noise should increase as the 'volume' is turned up. However, doing this just makes the same noise louder along with the signal

Fig 1



Figure 1: Electronic noise is mainly apparent in the shadow areas

– it doesn't add new noise. The signal-to-noise ratio due to electronic noise doesn't reduce as the ISO increases, and, as said before, with some cameras (particularly Canon DSLRs) it actually improves.

PHOTON NOISE

The light that makes up an image is not a continuous phenomenon. It is delivered in individual packets or quanta, called photons. The process of building up an image from photons is akin to sprinkling chocolate powder on a cappuccino coffee. Add just a little chocolate, and you'll see a clear random pattern of dots. Add more, and the chocolate colour becomes more obvious and the random pattern not so pronounced. Add enough, and the froth will be covered with chocolate and will be a uniform brown, although close inspection will still reveal that the pattern is made of randomly organised dots.

The same is true of photons, as the less light (and therefore photons) we use to make an image, the more the randomness is apparent – in electronic terms, the lower the signal-to-noise ratio is. The statistics of noise tell us that the signal-to-noise ratio is given by the square root of the number of photons counted in the pixels of an image (not necessarily the captured pixels, as this applies also to the output pixels, and this measure is arguably more important, since it is the one that counts when we view

an image). This tells us that the signal-to-noise ratio is greater (less noisy) in the bright parts of an image. It should now be apparent that the shadows are subject to a double whammy, because not only do they suffer worst from electronic noise, but they also bear the brunt of photon noise. Figure 2 is taken using a small exposure (low ISO) and the gradation of noise from the highlights to the shadows is apparent.

PATTERN NOISE

Pattern noise is more properly called 'pixel response non-uniformity' (PRNU). It arises from the fact that the pixels in a sensor and the associated read electronics are not perfect. If they were, every one would be precisely the same, but in practice there are slight variations. Thus, rows and columns of pixels are likely to respond in slightly different ways, giving rise to a characteristic tartan pattern. PRNU is also more apparent in dark areas than in light ones, so the double whammy becomes a triple. Figure 3 shows typical pattern noise.

DEALING WITH NOISE

The first stage of dealing with noise is to have as little of it as possible in the original captured image. The factors under the photographer's control are the amount of light and the ISO setting. As discussed earlier, the greater the exposure (where exposure means the density of light x time



Fig 2:

Fig 1

Figure 2: Photon noise depends on the amount of light, so it is graded between low noise in the highlights and high noise in the shadows

at the sensor), the lower the noise, so the goal is to have the biggest exposure, subject to the constraints of choosing a shutter speed to minimise motion blur and an f-number to get the desired depth of field.

Generally, you will get the biggest exposure by selecting a low ISO, but if you are using a manual mode, the exposure is actually independent of ISO and you can manipulate the relationship to reduce noise in two ways. One is to use the technique known as 'expose to the right' (see Richard Sibley's article on pages 46–47). Camera manufacturers usually build in a bit of extra light capacity in the sensor to cater for extended highlight headroom. If you know the exact extent of the highlights, that headroom can be used to gain more exposure. 'Expose to the right' means that the photographer examines the histogram resulting from a shot and increases the exposure until the highlights are as far as they can be 'to the right', meaning that all the available headroom has been used.

The second technique, if you have a camera with falling electronic noise as ISO is raised, is to use a similar technique with the ISO control. In this case, increase the ISO until the histogram is 'to the right', meaning the ISO is as high as it can be

without clipping highlights. Since this only improves the shadows, the first technique, maximising exposure, should take priority. It should be added at this point that once a photographer has strayed away from the nominal exposure setting for the ISO, he or she is committed to producing an image from a raw file and processing specifically to get the correct tonality, otherwise these images will appear 'overexposed'.

NOISE REDUCTION

Noise and detail go together. If an image is smoothed to reduce detail, the noise will also be smoothed. This is one reason why cameras with low pixel counts may look 'smoother' – because they capture less detail. Noise reduction attempts to distinguish between the variation due to noise and the variation due to detail, and smooth only the noise. When doing this it looks for correlations in the variation. There is no correlation in random noise, so this can distinguish the two. Various noise-reduction techniques are available, and it is worthwhile experimenting with these to find which one you like best as these things are subjective.

Another subjective factor is that most detail is detected by the eye in the luminance of the image, which means that the colour channels may be subjected to aggressive 'de-noising' without too much visible loss of detail. This can be achieved by converting the picture to an LAB representation (Luminance channel L and chrominance A and B) and applying de-noising to just the A and B channels, before converting back to RGB (some de-noising systems do this automatically).

Shadow noise can be dealt with simply by raising the black level. This leaves 'plugged' shadows, but they can be visually less objectionable than shadow noise. Pattern

noise is trickier. Noise reduction does not affect it because it is non-random. The best way to remove pattern noise is to take a sample flat, dark, grey frame, chosen to display pattern noise at about the same level as apparent in the image, and subtract that from the image, making sure alignment is precise. This is time consuming and error-prone, which is why many photographers choose cameras that are not subject to pattern noise in the first place.

The final tweak is to apply different de-noising techniques to different parts of an image. For example, if the sky is noisy, a mask can be made according to the blue colour, and de-noising applied only within the mask. Since the sky has no detail, that can be aggressive without affecting the parts of the image that do carry detail. **AP**

Fig 3



Figure 3: Pattern noise, or PRNU produces characteristic banding or 'tartan' patterns

BOB NEWMAN originally trained as a physicist, and is now an engineer and computer scientist with a PhD in real-time systems design. He has been working with the design and development of high-technology equipment for 35 years and has been responsible for innovative developments in graphics workstations, avionics, marine instruments and radar systems. Two of his products have won

innovation awards. Bob has led research projects in design methodology, automotive technology and, more recently, sensing systems. He is currently Professor of Computer Science at the University of Wolverhampton. Bob is a camera nut and has been a keen amateur photographer from the age of seven. He is delighted to be given the opportunity to apply his professional expertise to his hobby.

Noise-reduction software

Rather than spending money on noise-reduction plug-ins and standalone apps, why not try your raw converter? **Chris Gatcum** explains how

IN-CAMERA noise reduction is a standard feature on most cameras, but unless you want to print JPEG images from a card you're better off tackling noise using editing software. The reason for this is that software provides more control than editing in-camera. Your options don't start and end with your

editing software's built-in noise-reduction tools, though, as there are numerous noise-reduction plug-ins and standalone applications (see *Testbench* pages 44–45). The downside is that you have to pay anything from £30–£100 for the privilege. It therefore makes sense to try your editing

software first. While the implementation varies between programs, the approach is the same: tools are used to combat chroma (colour) noise and luminance (greyscale) noise. If you shoot raw files, the conversion stage is the best time to make your noise adjustments, and Adobe Camera Raw (ACR) is perhaps the place to start if you're using Photoshop or Photoshop Elements. The same tools also feature in Lightroom, with three sliders for dealing with luminance noise and two for reducing chroma noise.

LUMINANCE NOISE CONTROL

The Luminance slider is used to remove greyscale noise that makes an image look 'grainy'



A long exposure in low light has resulted in luminance noise, which has been made more apparent by the compensation needed to correct slight underexposure

The Luminance slider is ACR's master control for removing the underlying texture caused by greyscale luminance noise. This is the hardest type of noise to reduce, so the Luminance slider is the most destructive noise-reduction tool. Heavy use can quickly (and irretrievably) remove detail, so make sure you preview the image at 100% and scroll around to see what effect the noise reduction is having in various areas.

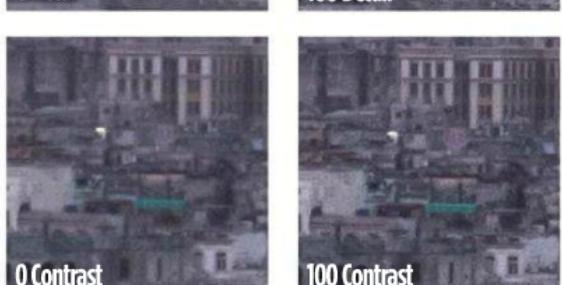
Once you increase the Luminance slider's value above 0, the Luminance Detail and Luminance Contrast sliders become active so you can fine-tune the noise adjustment. If you increase the Luminance Detail value, areas of fine detail

will be retained, albeit at the expense of less noise reduction being applied to these areas. Lower values apply the noise reduction more uniformly, which reduces more noise but can obliterate fine detail more quickly. Luminance Contrast affects the contrast of the noise: lower values result in a greater apparent reduction of noise, but also reduce overall contrast.

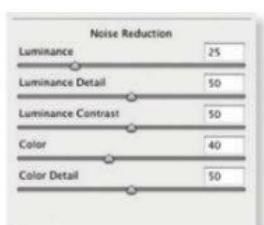
The effect of Luminance Detail and Luminance Contrast adjustments can be subtle, depending on your image, but as a rough guide, the finer the detail (and the more prevalent it is), the higher the value you need to set for both. For images with broad areas of similar tonality, lower values will prove more effective in reducing noise.



Adjusting the Luminance slider shows the destructive impact this control has. Set to 50, detail is already compromised, and at maximum (100) it is blurred beyond recognition



The effect of the Luminance Detail and Luminance Contrast sliders is less pronounced, as the details show

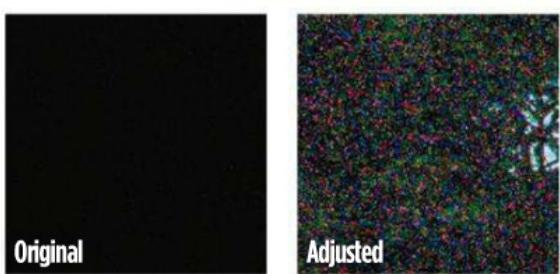


Setting the Luminance slider to 25 and the Luminance Detail and Luminance Contrast sliders to 50 strikes the right balance between noise reduction and detail retention for this 20-million-pixel image from a Sony Cyber-shot DSC-RX100



COLOUR NOISE CONTROL

The Color slider is used to alleviate chroma noise, which appears as coloured artefacts in an image



This image was exposed to retain detail in the sky and the shadows were then lightened heavily in ACR to bring back detail on the left. This has transformed the dark areas, as the chroma noise has been emphasised by the lightening process



Increasing the value of the Color slider has an immediate and obvious effect. At a setting of just 10, all traces of the chroma noise have gone so there's no need to go any higher. You can see that setting the Color slider to 50 or 100 has no further effect



The Color Detail slider does need adjusting, though. At a setting of 100, distinct red pixels remain in the dark areas at the left of the shot as the processing attempts to retain detail (and sharpness). These are removed when the slider is decreased to 0, and in this instance the result is not overly soft. In the end, both the Color and Color Detail sliders were set to 50, with additional noise reduction applied to reduce the remaining luminance noise

USING BOTH TOGETHER

Individually, Adobe Camera Raw's Luminance and Color controls can tackle one type of noise. With most images you will need to use both tools in tandem, though, with a view to balancing noise reduction with detail retention. A good way of achieving this is to tackle chroma noise first. This is because colour noise is the least appealing of the two – and the most distracting – so it is the one that will likely require the heaviest noise-reduction settings if you want to remove it completely.

Conversely, a small amount of luminance noise in an image can help preserve detail, and even give it a 'grainy' look. It's impossible to give hard and fast settings as cameras differ so much, but a general rule is the higher the resolution, the higher the settings you can use. Start by removing any chroma noise and then use the Luminance slider to reduce (rather than remove) the luminance noise. Trying to eradicate both is guaranteed to leave you with an overly smooth, plastic-looking result, so it's worth remembering that a little noise is sometimes better than none at all.

TIPS

1 The amount of noise reduction required will depend on the scene, the image size and ISO sensitivity

2 When you're setting noise reduction in ACR, zoom into the image so you are viewing it at 100% (actual pixels). At smaller preview sizes the effect may not be shown accurately

3 It is better to concentrate on removing chroma noise, but retain some luminance noise to avoid losing too much detail

4 Colour noise reduction can desaturate your images slightly, so be prepared to resaturate them if necessary

5 Noise reduction reduces sharpness, so is best combined with sharpening to compensate

6 If removing the chroma noise in an image proves too problematic, consider converting to black & white – it will alleviate coloured noise immediately

7 You can save adjustments you make in ACR to create a crude profile for your camera at different ISO settings. It may not provide you with the perfect noise reduction every time, but it will give you a starting point

SIX OF THE BEST

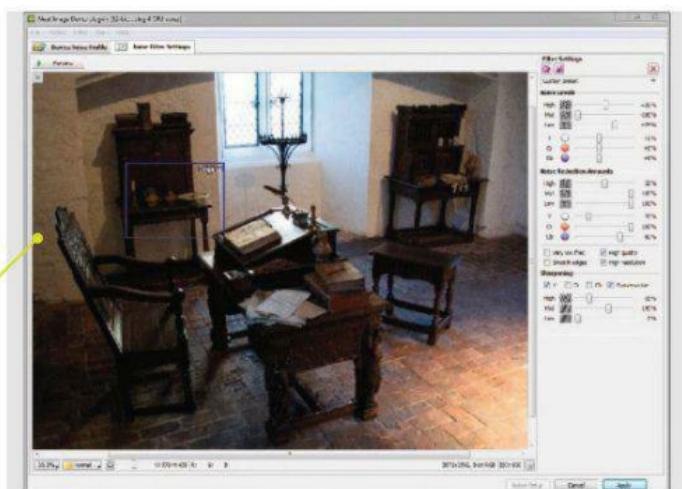
AP Testbench

Twice a month we test of six of the best **accessories** on the market. Here we look at noise-reduction software

Noise-reduction software applications

Digital noise is the equivalent of film grain, but unlike film grain it can be reduced or virtually eliminated by software.

Vincent Oliver takes a look at six noise-reduction software packages to see how well they perform



Neat image

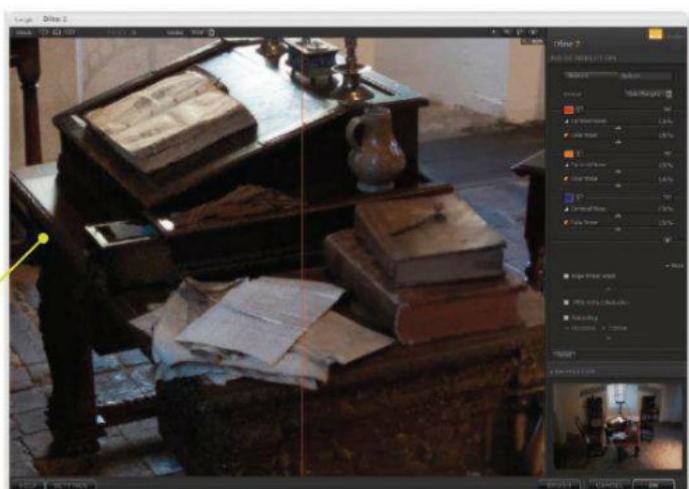
From \$39.90 (around £29)

www.neatimage.com

Neat image is available as both a standalone application or as a Photoshop plug-in. The interface is minimal in appearance, but clicking on the Auto profile will place a rectangle over an area containing noise. From here, click on the Noise Filter Settings tab to make all the necessary noise-level adjustments, noise-reduction amounts and

sharpening. Different values can be applied for high, mid and low frequencies for full control on all areas of the image.

This plug-in is very fast in use. Noise reductions can be previewed on the whole image or you can view the colour channels as separate windows. Settings can also be saved, making it faster to apply noise reduction to a number of images.



Nik Software

Dfine 2.0

\$99.95 (around £66)

www.niksoftware.com/dfine/usa/entry.php

Dfine 2.0 is a Photoshop plug-in that automatically seeks areas containing noise and places a selection box over each. An automatic algorithm is applied to reduce the noise. You can override the Automatic setting and choose Manual for greater control.

From here you can apply control points on the image to selectively reduce noise in different parts or select a colour range to apply the noise reduction. By default, three colour areas can be defined, and more colour areas can be added by clicking on the '+' symbol.

Dfine produced excellent results on our test file, with the processed image placed as a new layer in Photoshop.





FORTHCOMING TESTS

In the next few weeks AP hopes to run the following equipment through the most rigorous testing procedures in the industry.

Samsung NX300

Find out how Samsung's latest NX-system camera, with its new 20.3-million-pixel, APS-C-sized CMOS sensor, performs.

AP 27 April

Nikon Coolpix A

We test Nikon's brand-new DX-format compact camera with 16.2-million-pixel APS-C-sized sensor and 18.5mm f/2.8 (28mm equivalent) lens.

AP 4 May

Fujifilm X20

Retro charm and a new 12-million-pixel X-Trans sensor could make Fujifilm's X20 one of the best compact cameras of 2013.

AP 18 May

TESTBENCH: SIX OF THE BEST

We look at six of the best vintage medium-format TLR cameras in our two-page test.

AP 11 May



PictureCode Photo Ninja

\$154 (around £100)

www.picturecode.com/showcase/noise.php

Photo Ninja is a standalone application that offers full raw-file processing and Noise Ninja 3. The interface is well laid out, with a histogram in the top left along with the file's Exif details. Below this are the available raw-file adjustments. At the base is a browser, where you double click on an image to open it in the main window.

Noise Ninja offers tools that smooth out areas of an image, and remove residual noise and colour fringing. The noise-reduction options are basic, but they worked well on our test file. When used with the other adjustments and the browser, the Photo Ninja suite becomes an attractive option.



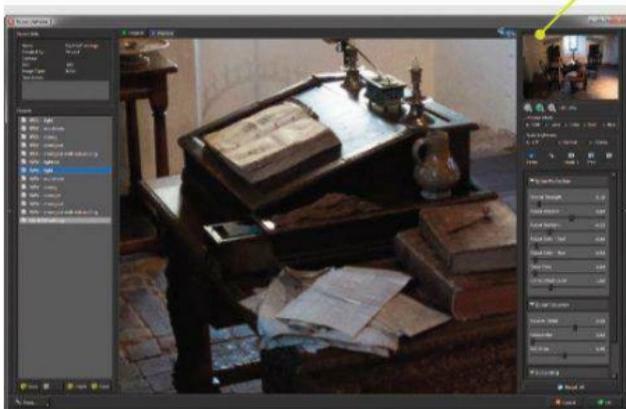
NDNoise

Freeware

ndnoise.free.fr

NDNoise is a standalone application with a good selection of controls, plus an Expert window. The Noise filtering, Dots/spots/edges smoothing and Retexturing sliders are in increments of 5-100. A fast preview rectangle is available so a portion of the picture can be seen with any adjustment applied. A dropdown list enables the Original or Filtered file to be viewed. However, there is no facility to save your settings and PNG is the only file format available for saving.

NDNoise may not have the same stylish interface as others on test here, but it does reduce most noise, albeit with some softening of the image.



Topaz Labs DeNoise

\$79.99 (around £53)

www.topazlabs.com/denoise



DeNoise has an easy-to-use interface. On the left are JPEG and raw-file settings plus the ability to add your own custom settings. The controls are on the right. These include noise reduction, detail recovery and debanding. A useful feature is the ability to preview the image as RGB, Luma, Colour and Red & Blue channels. The Auto Brightness settings will assist in previewing any adjustments.

The main window displays a section of the image, but there is no facility to view the entire image. The ease of use and quality of noise reduction are excellent.



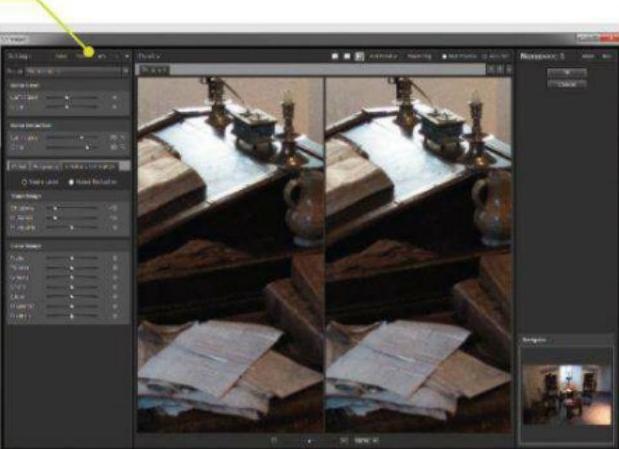
Imagenomic Noiseware

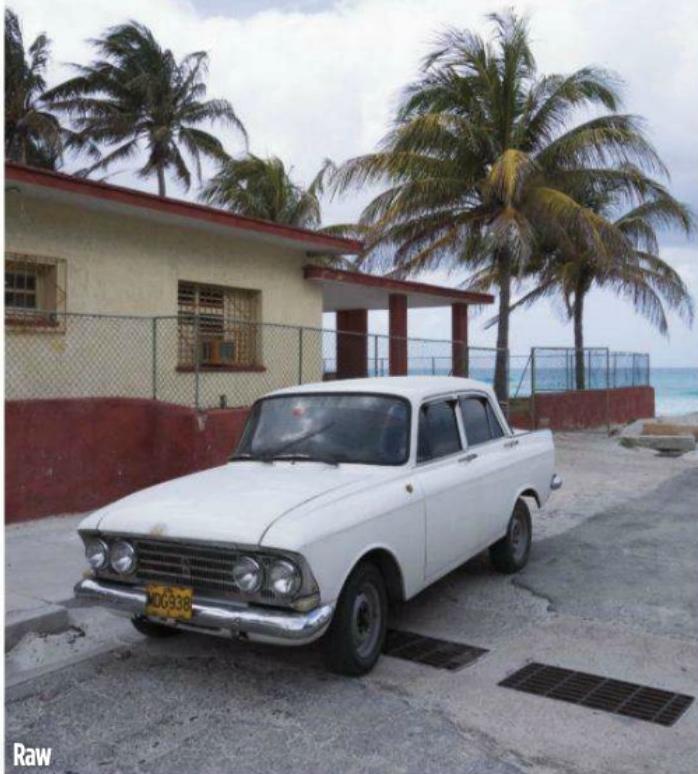
\$79.95 (around £69)

www.imagenomic.com/nw.aspx

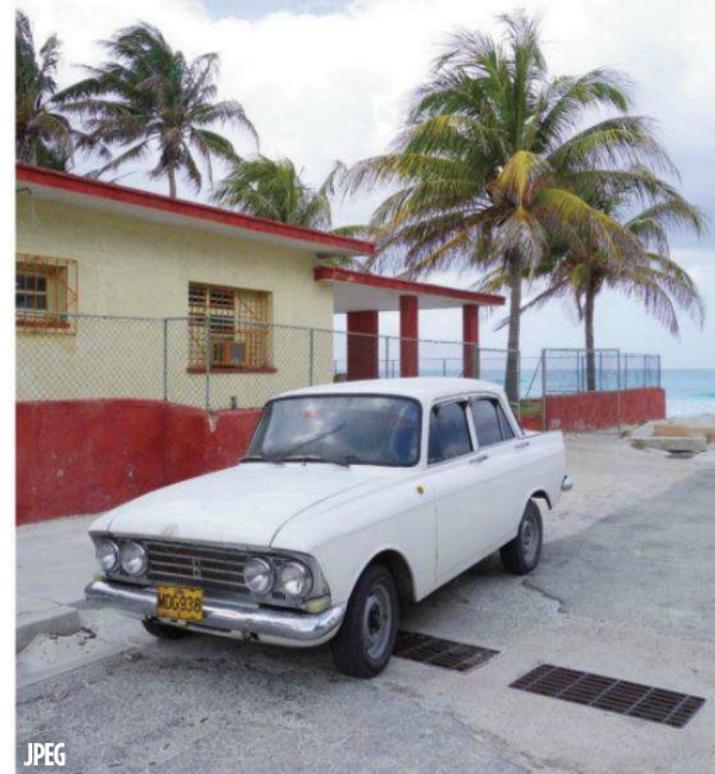
Noiseware is a Photoshop plug-in with an excellent range of adjustments that include noise level, noise reduction, detail protection, frequency and tonal-colour range. There are several predefined presets that can be used and tweaked to suit the image being processed. All adjustments or settings made can be saved as a custom preset for use on other images.

The interface is easy to use, with the option to split the screen for a 'before' and 'after' view. There is also the option for multiple previews. Noiseware offers lots of control for noise reduction, although it is easy to produce a soft-looking image.





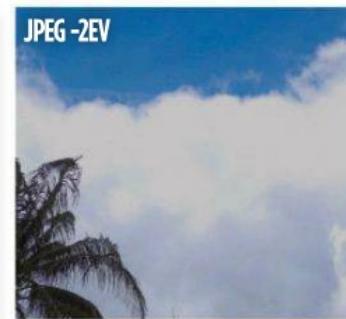
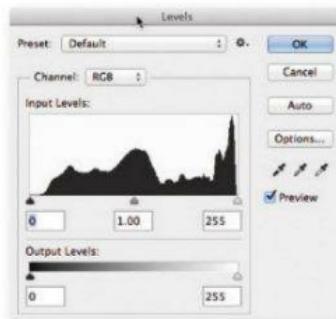
Raw



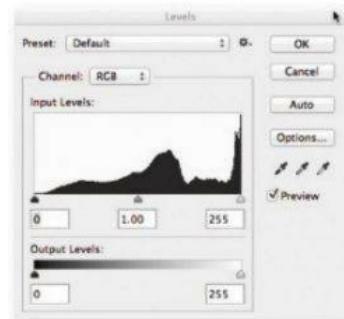
JPEG



Raw -2EV



JPEG -2EV



Shooting to the right

There is an easy technique to help you greatly reduce image noise, or even eliminate it – let more light into your images. **Richard Sibley** explains how

ONE OF the main causes of image noise is too little light reaching the photodiodes of an image sensor, as Professor Bob Newman has outlined on pages 40–41. Therefore, the amount of noise in an image can be significantly reduced by increasing the light reaching the sensor.

To increase the light you can either lengthen the exposure time or open the lens aperture. At this point, it is important to remember that the ISO sensitivity has no bearing on the issue. Unlike film, where the chemical formulation can be changed to make it more or less sensitive to light, a digital sensor has a base sensitivity that never changes. All that happens when changing a camera's ISO sensitivity is that either the analogue or digital signal produced by the sensor is boosted – the

sensitivity of the sensor remains the same.

Raising the ISO sensitivity of a digital camera actually causes the sensor to receive less light, as the metering compensates for the increase by reducing the exposure required. When shooting film, this wouldn't matter as the sensitivity of the film would compensate, but with a digital sensor, boosting the signal also increases the underlying electronic noise caused by the sensor. This reduces the signal-to-noise ratio, which causes the noise to become more apparent. This is why it becomes more visible as the ISO setting increases.

SHOOTING TO THE RIGHT

You may have heard the expression 'shoot to the right'. In short, 'the right' refers to the right-hand side of a histogram. In other

words, you are increasing the exposure to brighten the image, grouping the tones at the right-hand side of the histogram. This means that the shadows and midtones are also brightened, and it is these areas that are prone to noise.

The trick is to increase the exposure as much as is possible without blowing out highlight detail, or at least making sure that minimal detail is lost. While a simple increase in exposure by around 0.7–2EV should be ample, it does, of course, depend on the scene. The best method of achieving this kind of exposure is to use the histogram display on the camera's rear screen, and increase the exposure so that the curve is to the right of the graph but not completely bunched up towards the end.

Even with the exposure pushed to the right in this way, it is still beneficial to capture a ±0.3EV bracketed set of images. This is because most cameras will base the histogram on the JPEG image, or the JPEG preview image contained within a raw file,

rather than the raw file itself. It is therefore important to shoot in raw capture so you can squeeze the most detail from the scene. Also, select the largest bit depth possible for your raw images (Nikon cameras, for instance, often have the option of 14-bit raw files, as well as 12-bit). Basically, when you shoot raw images, you will usually have more leeway in the highlights than the histogram (and the camera's highlight clipping feature) may indicate. Therefore, if the histogram is on the verge of bunching up at the right-hand side, don't be scared of pushing it just a bit further.

EDITING THE IMAGES

With the exposure pushed as far to the right of the histogram as possible without clipping the highlights, the highlights and midtones will almost certainly be too bright and look overexposed. As this technique is designed for raw images, this is not a problem. The purpose is to brighten shadows to reduce noise, while making sure there is detail in the rest of the image that can be easily recovered with raw conversion software.

When editing the raw image, the first step is to reduce the exposure for the highlights. In Adobe Camera Raw, use the Highlights recovery slider to do this. Move the slider to the left to tone down the very brightest parts of the image, but not so much that the highlights become midtones. Similarly, the midtones may also need darkening slightly, which can be done by selecting the Tone Curve tab and then moving the Lights slider to the left.

As the brightness of the image has largely been reduced, the noise in the highlights and midtones should be far less noticeable, if visible at all. The shadows may still need to be lightened to bring out detail. However, as a brighter exposure has been used, less noise will be visible than if the image had been exposed with a default setting. Conversely, shadow areas may be quite bright, so they will need darkening. By darkening the shadows, any noise visible in these areas will also be hidden.

So the next time you are taking an image that might be susceptible to noise, make the exposure as bright as you possibly can without causing large blown-out areas of white. The increased exposure, and the darkening of the image post-capture, will help to keep noise to a minimum, for smoother, cleaner images. **AP**

Brightening the image with the camera's default metered exposure reveals noise in the shadow areas



0EV



Edit



200%



200%



1EV



Edit



200%



200%

TIPS

- 1 Always capture raw images at the best bit depth available on your camera
- 2 The in-camera histogram is only a guide
- 3 An increase in exposure of just 1EV can make a significant difference to the amount of noise
- 4 Use your raw-conversion software's highlight recovery slider to pull back highlight detail

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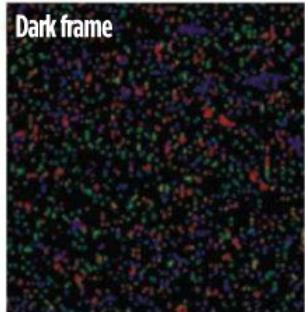
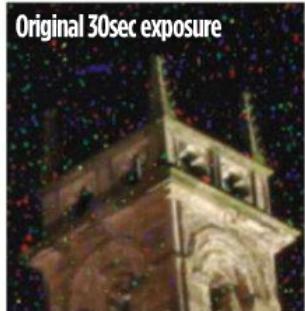
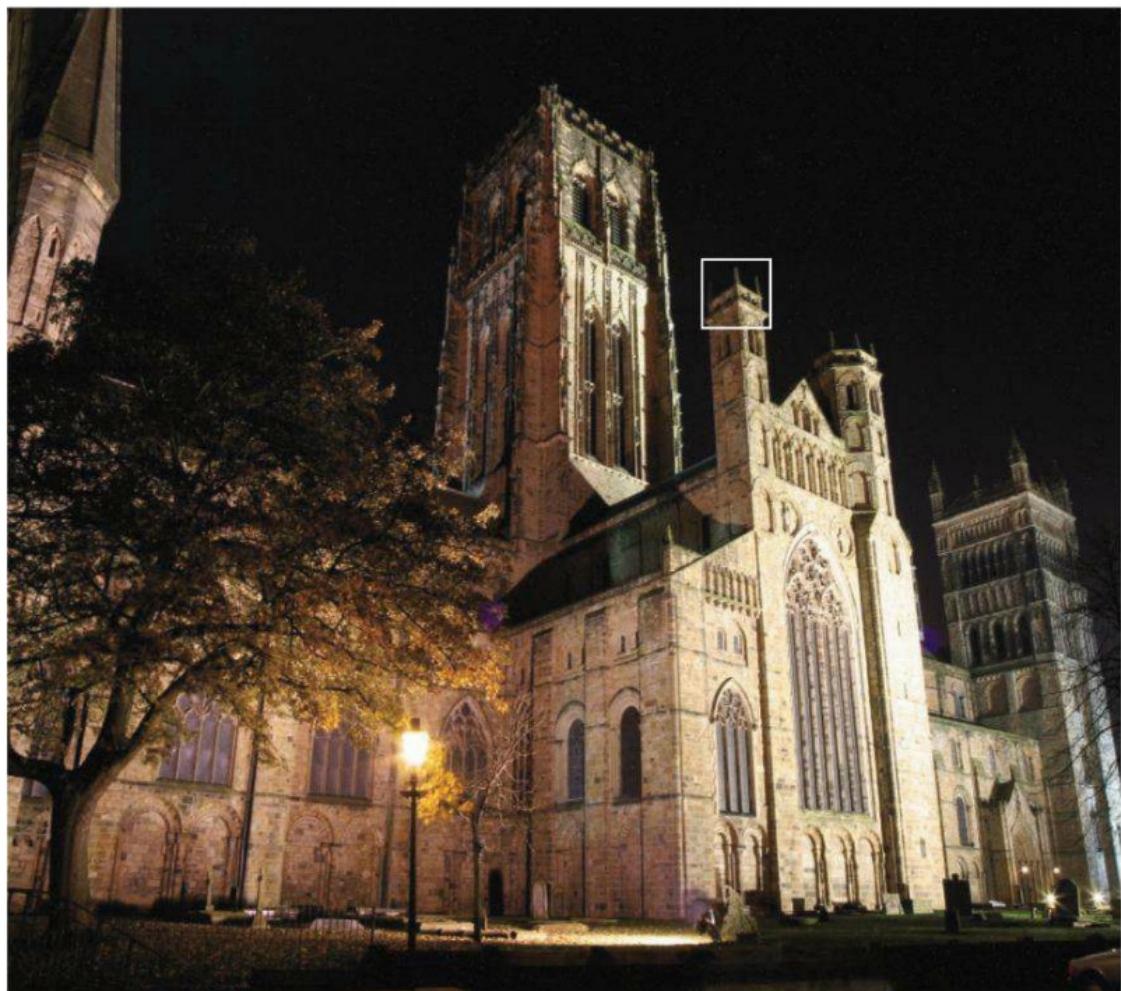


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In-camera noise reduction

Every manufacturer employs noise-reduction techniques in their digital cameras, but what exactly does each of them do and how can you get the best images straight out the camera? **Richard Sibley** explains

LOOK through the menu of a digital camera and a range of noise-reduction features can usually be found. However, many photographers ignore these and simply leave their camera's noise-reduction settings on default. While these are the manufacturers' recommended settings, it doesn't mean they are necessarily right for you and your photography. It's important to understand what each of these settings does and what your camera may be doing behind the scenes to produce an image with the least possible amount of noise.

LONG-EXPOSURE NOISE REDUCTION

When taking images that have long exposures, the camera's sensor is active for far longer than would usually be the case. Rather than a fraction of a second, the

sensor could be activated for 5secs, 10secs, 30secs or even minutes at a time. This increases the amount of background noise produced by the sensor. As long exposures are used in low light, the signal (created by the light) in the signal-to-noise ratio is low, so that, compared to the ideal image, there is more noise than signal.

To help reduce and remove the amount of image noise, cameras employ long-exposure noise reduction. When this setting is switched on, you will find that the camera takes the same amount of time as it took to make the original exposure to save the image before you can continue shooting. This is because the camera is taking a 'dark-frame' image. If, for example, you take an image with an exposure of 15secs, the camera will then take a dark-frame image, with the shutter completely closed, for a further 15secs. This

This image was taken with a 30sec exposure. With long-exposure noise reduction turned off, speckles of false colour are obvious (see image top right). A dark frame reveals the fixed pattern of the noise (middle right), which is then 'subtracted' from the initial exposure to create the final image (bottom right)

produces an image that is black, except for any long-exposure noise that may be produced by the sensor. The camera uses this dark frame to calculate the position of the noisy pixels, and it can then filter the image to remove any long-exposure noise. This is why longer exposures take longer for the noise reduction process to complete – it needs to be exactly the same exposure length to calculate the level of noise.

However, what many photographers don't realise is that long-exposure noise reduction is applied to both JPEGs and raw images, and the dark-frame data applied to raw images is not reversible in software. For most current cameras, this kind of noise reduction works well and it isn't very destructive, so it is worth leaving it turned on when taking long exposures. Quite how long an exposure needs to be for the noise reduction to activate will vary from camera to camera, but it tends to start at around 5secs. To find out when it kicks in on your camera, set the exposure to 1sec and keep increasing it until the time between taking your images is the same length as the exposure.

HIGH ISO NOISE REDUCTION

As we all know, shooting at high sensitivities increases the level of noise in the resulting images. This obviously isn't a very attractive look, particularly with colour noise, which appears very unnatural. All DSLRs, compact system cameras and some more advanced compact cameras have the facility to adjust the degree of high ISO noise reduction that they apply, although the strength of each setting and how it is applied can vary from manufacturer to manufacturer.

I prefer to leave high ISO noise reduction set to a reasonably low level. It still helps to reduce noise, but does not destroy the fine details that make up the image. The best way to check the effect of high ISO noise reduction is to set a camera to ISO 1600 or higher and photograph the same scene with all the different high ISO noise-reduction settings. When you look at the images, you will be able to spot the setting at which the reduction starts to have a destructive effect on image quality.



Original



TESTING A CAMERA FOR NOISE

THERE is a simple test that allows you to see how your camera deals with noise at different ISO sensitivities. Place a body cap on your camera and set it to shoot raw images. With the exposure mode on manual, take a shot with the shutter speed set to 1/30sec and ISO to 100, then increase the sensitivity and decrease the shutter speed for each subsequent shot – for example,

take the second shot with the camera set to 1/60sec and ISO 200.

Once you have completed the ISO sequence, open the raw images and increase the exposure of all the images so that any noise is visible, and make sure that noise reduction is turned off. In the examples below, taken on a Panasonic Lumix DMC-LX3, Canon EOS 5D and Canon EOS-1D X, all the

raw images have had their exposure increased by 4EV for illustrative purposes so it is clear to see how much the signal-to-noise ratio is increased.

By looking at all the images at 100%, and with no light affecting any of them, it is possible to see what noise is caused by the camera's sensor, and at what ISO sensitivities noise becomes a real issue.

What is also interesting is how the cameras produce their different ISO settings. It is believed, for instance, that the intermediate ISO settings on some Canon cameras are created by digitally pushing or pulling the nearest 1EV exposure. Many photographers online claim that images from some of Canon's APS-C DSLRs look better at ISO 160 than images taken at ISO 125. It is all to do with the way the camera processes the analogue and digital signals from the sensor.

We have conducted our own test to see if this is accurate. To view the images and read the results, visit www.amateurphotographer.co.uk/canonsensornoise.



	ISO 100	ISO 400	ISO 1600	ISO 3200
EOS-1D X				
EOS 5D				
Lumix LX3				



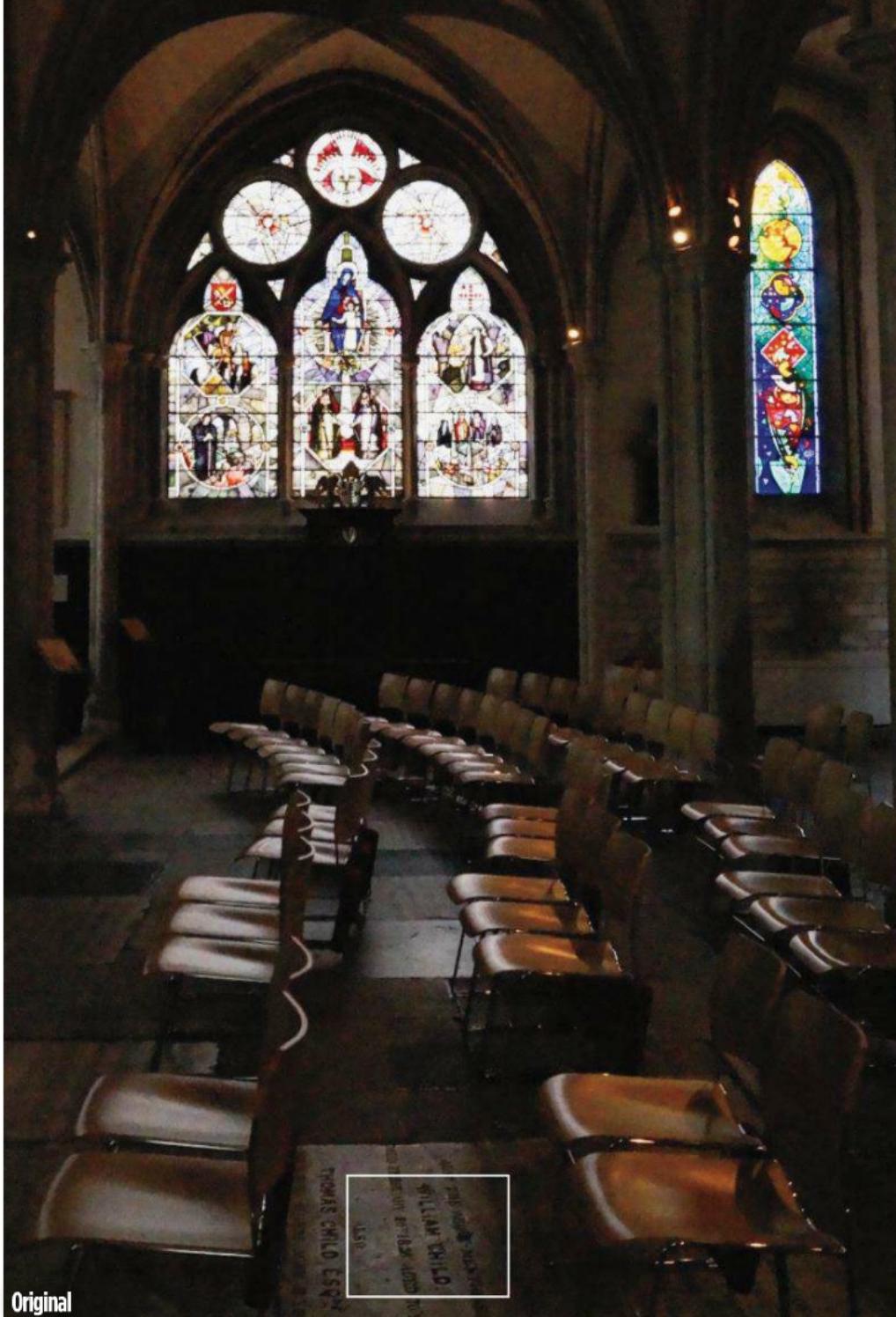
**Professor
Newman
explains...**

ISO AND NOISE

THE ISO Exposure Index dictates which metered exposure corresponds to a given output tone in an sRGB file. For example, an ISO setting of 100 implies that an exposure of 0.78 lux-seconds will produce an sRGB tone of 118% grey. What the ISO standard does not do is dictate how that correspondence will be achieved.

There are two stages in the camera's processing chain where changes in the ISO tone mapping is achieved. One is to change the amount of analogue amplification before digitisation, while the second is to do so after digitisation using digital multiplication. Most cameras adopt a mix of the two approaches. The advantage of changing the analogue amplification is that it relieves some of the strain on the analogue-to-digital converter (ADC). If weak signals are amplified before digitisation, the noise produced by the converter is smaller in relation to the signal. If the analogue-to-digital converter were good enough, there would be no need to change the analogue gain, but often they are not sufficiently good.

In these cases, optimising the analogue gain is essential in low light – the more analogue gain, the less the contribution of ADC noise. Many cameras, such as some Canon DSLRs with APS-C-sized sensors, are designed such that the gain can only be changed in whole stops, so intermediate values are achieved using digital multiplication. Others have more sophisticated designs that allow adjustment in smaller steps.

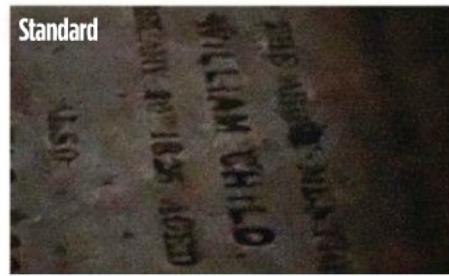


Original

OTHER IN-CAMERA NOISE REDUCTION

Some manufacturers employ intelligent noise reduction algorithms. These actually analyse the image and employ greater noise reduction in areas where there is less detail. For example, one area where luminance noise tends to be most visible is in the sky of a landscape photograph. However, as there is little fine detail in a sky, noise reduction can be heavily applied, while other areas like foliage will receive less reduction to retain the detail. This works in a similar way to the Luminance Noise detail slider in Adobe Camera Raw, essentially masking off certain areas so that they are less affected by the noise reduction. While many manufacturers do this, Sony promotes it heavily, calling it Adaptive Noise Technology.

Another mode introduced to recent Sony single-lens translucent cameras is Multi-Frame Noise Reduction. This work in a similar way to the stacking technique shown on page 53, but is produced in-camera. By taking six shots in quick succession, the camera then automatically aligns the images and produces a final result with the noise filtered out. The feature works as low as ISO 100, but is obviously designed to be used with high ISO settings.



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Stack images to reduce noise

Although shooting at a low sensitivity is the best way to create a noise-free image, there is a way of using a high ISO setting and then stacking the images to reduce noise. **Richard Sibley** explains how

WHEN shooting in low light, there is often no choice but to use a fast shutter speed and a high ISO. With this increase in sensitivity, noise will inevitably become an issue. There is, however, a way to reduce the noise that involves shooting the same scene in a quick burst. To perform this technique perfectly a tripod is required, but acceptable results can be achieved even when shooting handheld – provided a fast enough

shutter speed is used and the photographer can maintain a reasonably steady hold.

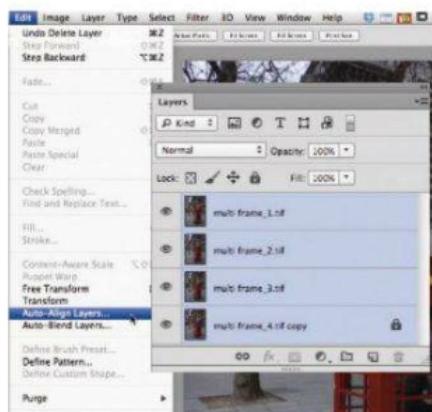
The first step is to set the camera to its fastest continuous shooting rate. Generally, a minimum of four images are required, so a camera with a 5–6fps shooting rate should be fine. It doesn't matter too much whether you shoot in raw or JPEG format, but raw has the obvious advantage of giving you more control over your images.



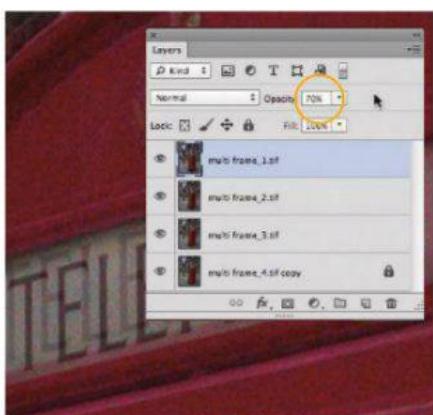
1 Open the images in Adobe Camera Raw and perform a basic edit to taste. Don't apply any noise reduction or sharpening at this stage. Apply the same correction to each of the raw files.



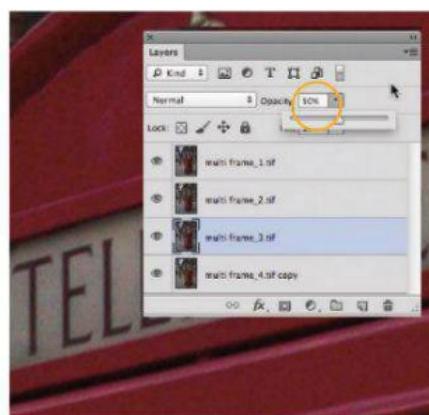
2 Once you have finished editing the images, they need to be loaded into Photoshop as different layers. If you are using Adobe Bridge, click on Tools > Photoshop > Load Images to Layers, which will make the task easier.



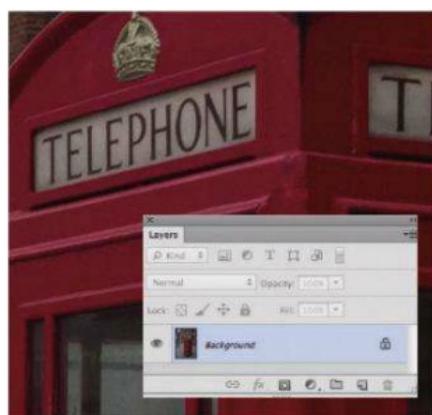
3 With the images loaded as layers, click Edit > Auto Align layers. Photoshop will now automatically align each layer so that it matches.



4 If your editing software doesn't have this facility, you can do it manually. To do so, reduce the opacity of the top layer to around 70% and then move the layer below until it is aligned with the top layer. Switch off the layer once it is aligned and then align the layer below with the top layer. Repeat this until each of the layers is aligned with the 70% opacity top layer.



5 Now the opacity of the layers needs to be adjusted. Turn all the layers on and leave the opacity of the bottom layer set to 100%. Each layer above this should be set to an opacity based on the following equation: $\text{layer opacity \%} = 100 \times 1 / (\text{number of layers below} + 1)$. For example, the next layer up should have an opacity of $100 \times 1 / (1 + 1) = 50\%$, the layer above that $100 \times 1 / (2 + 1) = 33\%$, the layer above that $100 \times 1 / (3 + 1) = 25\%$, and so on.



6 The final image should have significantly less noise. Finish the image by selecting Layer > Merge Layers and then save the image as a TIFF file. The image can then be edited as normal.

Ask AP

Let the AP team answer your photographic queries



LENS FIT

Q I plan to buy a Nikon D3200 and have an old camera lens, a Nikon 28-100mm f/3.5-5.6G. Will this lens fit the D3200?
Barrie Cox

A Your 28-100mm lens will fit a D3200, but you will have to focus manually. This is because the camera doesn't have a built-in AF motor, and instead relies on the lens having an AF motor. However, to keep manufacturing costs down, the 28-100mm G lens works on the same principle – it hasn't got an AF

motor of its own, and relies on the camera having one. So, as neither the camera nor the lens has an AF motor, you simply haven't got the option of focusing automatically. In all other respects, the lens will function and allow you to take pictures, though, so it's not a total loss.

Chris Gatcum

CORRECTION

It appears that my maths went a little awry in my answer in Graham Arnold's *Software as a digital zoom* question (Ask AP, AP 23 March), as pointed out by Bob Maddison and Peter Hancock. Bob states: 'Chris Gatcum said that if you effectively doubled the focal length by cropping, this would lose you 50% of the picture. Sorry Chris, you would lose 75% of the picture: you would lose 50% from both the length and height thus leaving you with only 25% of the original picture area.' while Peter adds, 'Surely, by effectively doubling the focal length in a computer, you will be halving the number of pixels horizontally and vertically? This means you end up with a quarter of the number of pixels used, which is a reduction of 75%, not 50%.'

This only serves to strengthen the point I was making: cropping an image to effectively increase the focal length and 'zoom in' will reduce image quality considerably. My initial answer to Graham suggested that doubling the focal length of an image taken with Fujifilm's 12.3-million-pixel X100 would result in a 6-million-pixel image, but as Bob and Peter have noted, this is not the case. The X100 produces images at a maximum size of 4288x2848 pixels, and halving each of these (to effectively double the focal length) results in an image measuring 2144x1424 pixels, or roughly 3 million pixels in total. My thanks to Bob and Peter for taking the time to point this out.

Chris Gatcum



ASK...

Be it about modern technology, vintage equipment, photographic science or help with technique, here at AP we have the team that can help you. Simply email your questions to: apanswers@ipcmedia.com, via [twitter @ap_answers](https://twitter.com/ap_answers) or by post to: **Ask AP, Amateur Photographer Magazine, IPC Media, Blue Fin Building, 110 Southwark Street, London SE1 0SU.**

IPAD CONNECTION

Q I plan to spend some time in London, Paris and Rome this summer. I am not bringing a laptop, but I will bring my iPad. Is there a way for me to transfer photos that I take with my Canon EOS 7D to my iPad? I am concerned about just leaving my photos on the CompactFlash memory card. **Craig Holtz**

A I would start by taking a trip to your local Apple store (or going online). If you've got a 4th Generation iPad or iPad Mini, then the Lightning to USB Camera Adapter is possibly what you're after, while Apple's iPad Camera Connection Kit offers similar camera-to-iPad connectivity for earlier iPad iterations. Third-party alternatives are also available, and a search for 'iPad camera connection kit' on eBay threw up almost 1,500 results in total. **Chris Gatcum**

IN SEARCH OF BATTERIES

Q Could you tell me where I can buy camera and camcorder batteries? I believe there was a company mentioned in AP a few years ago. **E Metson**

A I'm not sure what battery it is that you're after, but maybe the Small Battery Company can help? Its website (www.smallbatterycompany.org.uk) has a 'battery finder' feature that will enable you to find camcorder and digital camera

FROM THE AP FORUM

Camera insurance

Milamber asks Can someone suggest a good insurance company specialising in camera equipment for the amateur photographer that isn't hugely overpriced? The policy should ideally cover theft and accidental loss, and if possible accidental damage. So far, the insurance firms I've found have either been too expensive or had a substantial number of bad reviews. I

AP GLOSSARY

VIEWFINDER MAGNIFICATION

In Ask AP 13 April, we saw how viewfinder coverage was important in ensuring that we see as much of the scene that will be recorded by our sensor (or film) as possible, but that's only part of the viewfinder equation. As the name suggests, viewfinder magnification refers to how big the viewfinder image appears compared to how you would see it with your naked eye. Obviously, different focal lengths change the magnification of the image in the viewfinder, and different focus distances will change it as well, so the 'standard' is to give the viewfinder magnification with a 50mm lens set at infinity focus – the closest match to human vision.

A magnification of 1x would indicate a perfect correlation between the viewfinder and your eyes, but lower magnifications are the norm, with most viewfinders falling into the 0.7x-0.8x

magnification range (although some are higher). As a guide, a magnification of 0.75x indicates things will appear three-quarters the size they appear to the naked eye, 0.5x means they will be half-size, and so on. The greater the magnification, the better, and a higher viewfinder magnification is especially useful for macro photography when you want to focus manually.

The reason higher viewfinder coverages aren't commonplace is because coverage works directly against magnification – the greater the coverage, the lower the magnification is likely to be. This means that compromises have to be made at the design stage. For example, Canon's EOS 6D offers 97% coverage and 0.71x magnification, while the EOS 650D shows a smaller area of the scene (95%), at greater magnification (0.85x).

batteries for certain older models, and it can also help with batteries for older film cameras. If you're not online, you can call the London-based company on 0208 871 3730. **Chris Gatcum**

PRINT SEPARATION

 My daughter was unfortunate enough to employ a cowboy electrician, and had all her photographs subjected to heat from the fire he caused. The negatives seem OK, but the prints are stuck together. Do you know a way of separating the prints? I'm trying to do it by soaking them in water. **Tom Carroll**

A My suggestion would be the same as yours: soak the prints in water in the hope they will come apart. If that doesn't work, then nothing obvious comes to mind and I would suspect that if the prints have been bonded together so vehemently, the damage is probably irreversible and peeling them apart is likely to ruin the emulsion on the paper. If that's the case, then getting the photographs reprinted is my best answer, assuming, of course, that you have the negatives. Can any AP readers offer an alternative solution?

Chris Gatcum

don't want to add my equipment to my home-insurance policy because it has a maximum limit of £200 per individual item. When I contacted the company to enquire about removing that limit I was informed that my monthly policy payments would triple!

Debbi replies Have you tried Aaduki (www.aaduki.com) for a quote, which specialises in insurance for photographers?

swanseadave replies That limit on your policy is unrealistically low. I guess you must have many items that would cost considerably more than £200 to replace. Would it be more cost effective in the long term to increase this limit?

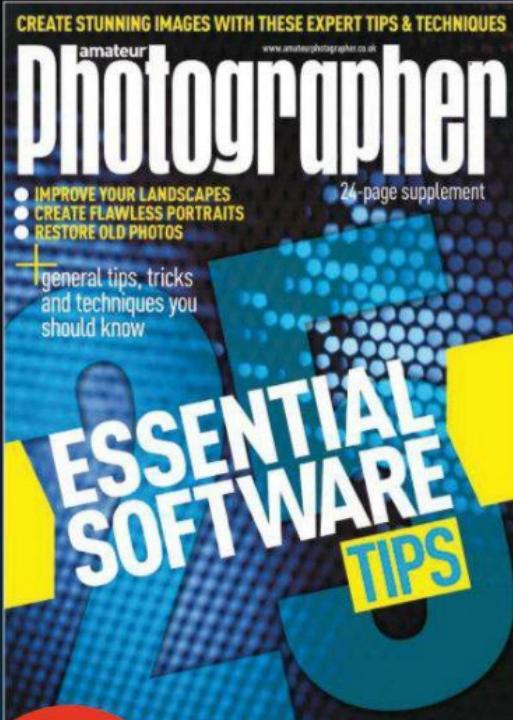
Benchista replies Unless you're paying hardly anything, change your household policy!

Fuzzypiggy replies If they're only covering you for £200 on any single item, your monthly premium must be extremely low because £200 is barely enough to cover the cost of most modern mobile phones, let alone a well-specified pocket point-and-shoot camera. I'd certainly try MoneySupermarket (www.moneysupermarket.com) or similar to see what else is around that will give you better cover.

Always check what your insurer classes as 'a collection'. This is very important with camera kit bags. I currently have £2,000 cover on any single high-price item (phones, laptops, single camera), but even though none of the items in my camera bag breaks the £2,000 limit on its own, my insurer classes my bag as 'a collection'. This means it must be insured for the complete collection's replacement value, otherwise they won't pay out.

In next week's AP

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We've 25 tips and techniques to help you create professional-quality images

SAMSUNG NX300

Tim Coleman tests the 20.3-million-pixel Samsung NX300, with new AF system and Wi-Fi connectivity



APOY ROUND 2 RESULTS

**APOY
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We reveal the top 30 winners in our **Life in Motion** round of **APOY 2013**

ON TEST



**MAGNIFICENT
SEVEN**

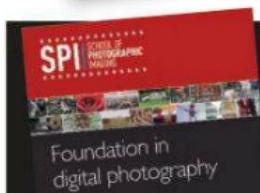
We look at seven of the very latest 'tough' cameras and explain why you should have one

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Retina Reflex S

This Type 034 model is fitted with a 50mm f/2.8 Schneider Retina-Xenar lens. Unlike the later models III and IV, the shutter button is in the 'normal' position on the top-plate



HOW MUCH DO THEY COST?

A Retina Reflex S or Reflex III in good working order will cost £35-£60 on eBay, the scarcer Reflex IV £50-£70 and rather more from a classic camera dealer. Having one repaired will probably cost twice the cost of the camera. A Retina IIIS on eBay will cost £125-£200, depending on condition. The commoner lenses (35mm, 85mm and 135mm) are often available on eBay from about £30-£40. The scarcer 30mm f/2.8 Rodenstock Retina-Eurygon can fetch as much as £125, and the 200mm f/4.8 Retina Tele-Xenar £125-£175.

Kodak Retina Reflex S

Ivor Matanle looks at a 1950s SLR whose lenses fitted and coupled with a rangefinder camera

THE KODAK Retina Reflex S, announced during 1958 and first marketed in 1959, was the second of a series of Retina Reflex cameras that began in 1957. The original Retina Reflex had been equipped with the same 50mm f/2 Xenon lens as the folding Retina IIC coupled-rangefinder camera, and could use the same replacement front elements as the IIC to provide 35mm wideangle or 80mm long-focus capability. Yet the Retina Reflex S and its successors were something else entirely.

By 1958, Kodak was becoming aware that the popularity of coupled-rangefinder cameras was declining, as European 35mm SLRs such as the Praktica, Exakta, Praktina and Edixa reflexes became more versatile and affordable. It was also clear that Japanese SLR manufacturers had designs

**Retina IIIS and Reflex III**

A coupled-rangefinder Retina IIIS and a Retina Reflex III, each with 50mm f/2.8 Schneider Retina-Xenar, beside a 28mm f/4 Retina-Curtagon and a 135mm f/4 Retina Tele-Xenar, each of which can be used with either camera, or with a Reflex S or a Reflex IV

on the US and European markets. To sell well, new rangefinder cameras and SLRs had to be versatile and offer something that their competitors did not.

Kodak decided to have a foot in both camps. The company provided the market with a top-quality SLR and a top-quality rangefinder camera that used the same range of interchangeable lenses.

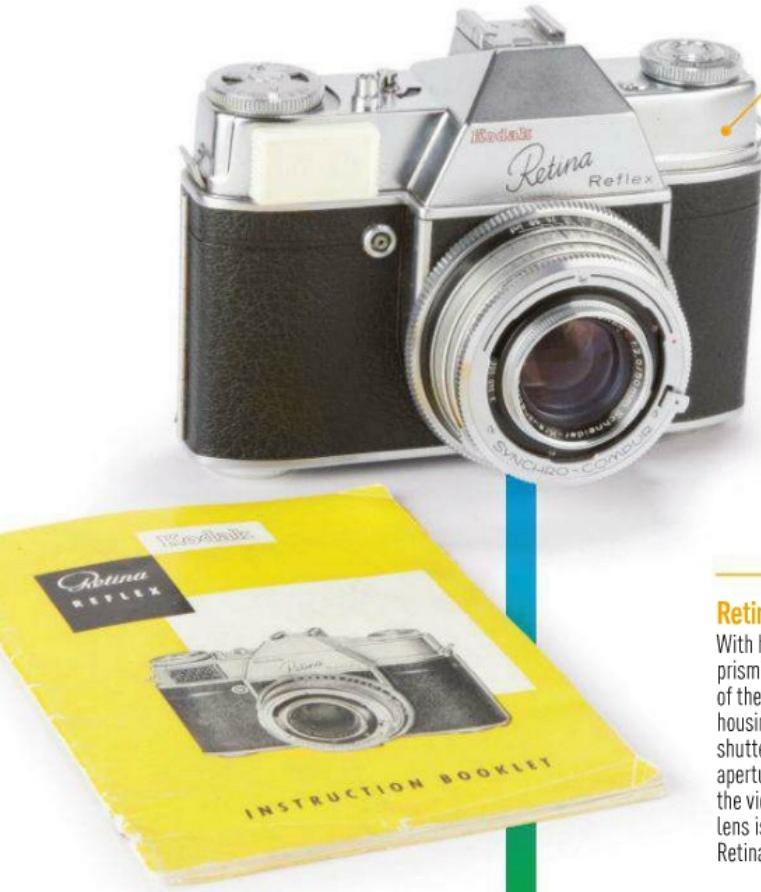
THE RANGEFINDER

Thus, in 1958, the Retina IIIS rangefinder camera was born. This was the first non-folding camera (apart from the initial Retina Reflex) to bear the Retina name, and introduced true lens interchangeability to the Kodak range. The whole lens was interchanged with a neat

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Retina Reflex of 1957

The original Type 025 model, with 50mm f/2 Schneider Retina-C, whose interchangeable front element, like that of a Retina IIC, IIIC, IIC or IIIC folding rangefinder camera, can be replaced with a 35mm f/4 Retina-Curtagon C, a 35mm f/5.6 Retina-Curtagon C or an 80mm f/4 Longar-Xenon. The original instruction book is beside the camera



Retina Reflex IV

With hotshoe and prism in the front of the pentaprism housing to display shutter speed and aperture data in the viewfinder. The lens is a 50mm f/2.8 Retina-Xenar

 bayonet mount, not just the front elements of the lens as was the case with the Retina C series. The Synchro-Compur shutter was positioned behind the lens, and this made it possible for a substantially greater range of lenses to be offered for the Retina IIS and Retina Reflex S than for the earlier C-series cameras. Somewhat longer and bulkier than the folding IIC, the rigid-bodied Retina IIS was available with either Schneider or Rodenstock lenses and, because the whole lens was interchanged without residual elements remaining within the camera, either brand of lenses could be used on any IIS. So you could (and still can) have an outfit of mixed Schneider and Rodenstock lenses.

In 1959, the Retina Reflex S appeared as the companion SLR to the IIS. Not unlike the original Retina Reflex in appearance, the Reflex S had the same lens mount and exposure-setting system as the IIS and was therefore compatible with it. The same S lenses supplied for the IIS could also be fitted to the Reflex S.

However, be warned that the 200mm f/4.8 Retina-Tele-Xenar, launched in 1962 for the Retina Reflex series, is incompatible with the IIS. Fitting it to a IIS can cause expensive damage. Note also that Schneider lenses of the S series with numbers above 8,000,000 do not have the rangefinder coupling cam necessary to operate the rangefinder coupling cam of the IIS.

Four alternative 50mm lenses were offered for the IIS and Retina Reflex S, with the 50mm f/2.8 Schneider Retina-Xenar being the most common. The 50mm f/1.9 Retina-Xenon was the upmarket Schneider option. The Rodenstock alternatives were a

1957

Original Retina Reflex appears

1958

Retina IIS launched using S-series lenses

1959

Retina Reflex S appears using S-series lenses

1960

Retina Reflex S replaced by Retina Reflex III

1960

Retina IIS production ends. Production of Retina C cameras and lenses ends

1962

200mm f/4.8 Retina Tele-Xenar Launched

1964

Retina Reflex IV replaces Reflex III

1967

Retina Reflex production ends

50mm f/2.8 Retina-Ysarex or a 50mm f/1.9 Retina-Heligon. All were high-quality lenses delivering typically '50s performance, with excellent resolution and what would now be regarded as medium contrast.

The Schneider range of S lenses, which is the more common in Britain, included 28mm f/4 and 35mm f/2.8 Retina-Curtagon wideangles plus an 85mm f/4 Retina-Tele-Artion and a 135mm f/4 Retina-Tele-Xenar. The Rodenstock series offered a 28mm f/4 Retina-Eurygon, a 30mm f/2.8 Retina-Eurygon, a 35mm f/4 Retina-Eurygon, a 50mm f/2.8 Retina-Ysarex, an 85mm f/4 Retina-Rotolar and a 135mm f/4 Retina-Rotolar. All these lenses can be used on any Retina Reflex S or either of the subsequent Retina Reflex models.

SETTING THE EXPOSURE

Both the Retina IIS and the Retina Reflex S had a coupled selenium exposure meter mounted in the camera top-plate. A meter needle in a window in the top-plate moves in response to the light level and a pointer is moved to match the needle by revolving a knurled wheel below the lens mount. Turning the wheel moves the shutter-speed ring relative to the aperture scale, thereby altering the exposure to match the light level.

The aperture scale is part of the camera, not the lens, and a coupling transfers the aperture setting to the lens diaphragm. The same exposure-setting mechanism therefore serves for all the lenses. The focusing screen of the Retina Reflex S was quite advanced for its time in that the whole



Retina Reflex III

This Type 041 model is fitted with the 50mm f/1.9 Retina-Xenon. Note the shutter release on the front of the camera. This model initially had the 'small' exposure meter honeycomb of the Reflex S, but from 1962 had a different 'large' Gossen meter

Reflex S

This view of the base shows the wind lever, the knurled exposure-setting knob and (right) the catch that opens the camera back

**Reflex S**

The top plate shows the ASA and DIN film-speed settings for the meter next to the meter window, the exposure counter and its release knob next to the shutter release, and the film-type reminder dial in the rewind knob. The knob in the rear of the top-plate moves the exposure counter on

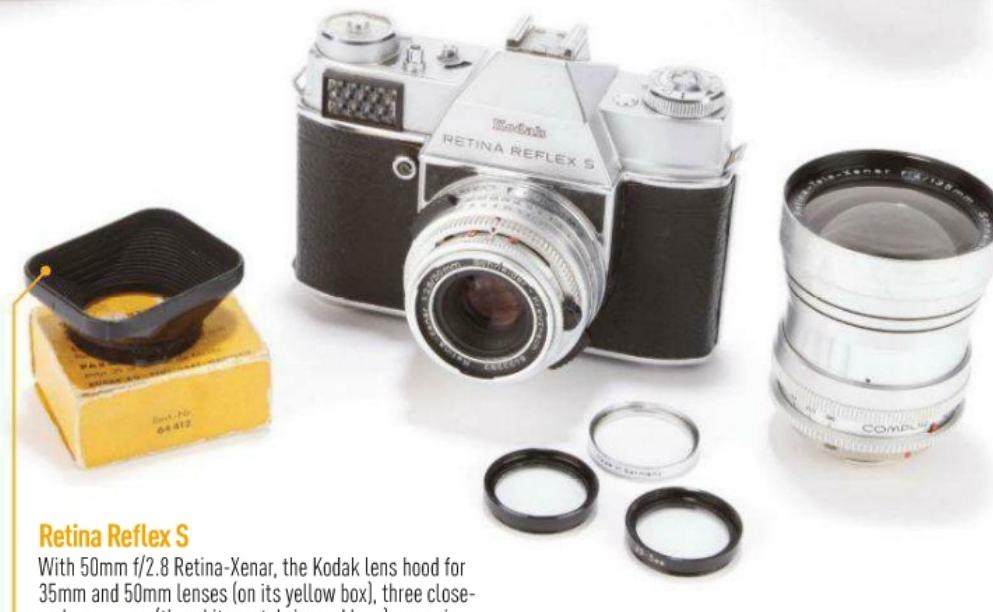
WATCH OUT FOR**Unreliability**

Retina Reflex-series cameras tend to be unreliable in old age and repairs can be costly. The Retina Reflex mechanism is complex, with a lot of linkages, a lot of gears and a lot to wear.

The Retina IIIS is less prone to problems because it is less complex, but I am told that even a IIIS is far from easy to repair. Both the Retina IIIS and the Retina Reflexes are best bought from a good specialist dealer.

YOU MAY ALSO LIKE

A Voigtländer Bessamatic with either a 50mm f/2.8 Color Skopar-X or the scarce 50mm f/2 Septon

**Retina Reflex S**

With 50mm f/2.8 Retina-Xenar, the Kodak lens hood for 35mm and 50mm lenses (on its yellow box), three close-up lenses, one (the white metal rimmed lens) a genuine Kodak lens, plus black 1D and 2D non-Kodak 29.5mm lenses and a 135mm f/4 Retina Tele-Xenar

screen provided a focusing image. It also had a split-image rangefinder in a circle in the centre of the screen.

THE 1960 WATERSHED

By 1960, Kodak must have realised that the Japanese SLR revolution was about to overtake the rangefinder camera market worldwide, as this year saw the end of production of Retina folding cameras, the end of the two-year manufacturing period of the Retina IIIS and the end of manufacture of the C-series lenses.

At the top end of the Kodak price range, marketing emphasis switched to the Retina Reflex S and its lenses and accessories. Yet the Retina Reflex S itself was phased out at the end of 1960 to make way for the Retina Reflex III, with its shutter release on the front of the camera, the meter needle visible in the viewfinder and the exposure counter in the baseplate. In 1964, that in turn was replaced by the Retina Reflex IV, with a prism in the front of the prism housing to display the shutter speed and aperture rings in the

viewfinder plus a hotshoe for flash.

In 1966, Retina Reflex production ended, although some subtly different Retina Reflex IV cameras were assembled from spare parts in 1977 at Kodak in Germany for presentation to Kodak executives. For identification details, see www.mwclassic.com/articles/rare_retina/rare_retina.htm.

EQUIVALENT RANGEFINDER

As far as I am aware, no other manufacturer made a leaf-shutter SLR whose lenses were both fully interchangeable (as distinct from front-group interchangeable) and fitted the same manufacturer's coupled rangefinder camera. The only near equivalent is the Zeiss Ikon Contaflex Alpha or Beta SLR, with 45mm f/2.8 front-element interchangeable Panatar, and the Zeiss Ikon Contina III, a non-rangefinder camera with built-in meter and the same 45mm f/2.8 Panatar.

The Voigtländer Bessamatic SLR had a similar specification to the Retina Reflex S, as did the Zeiss Ikon Contaflex Super B, but in neither case was there a

WATCH OUT FOR
Locking up

As with all post-war Retinas, the camera locks up and becomes apparently jammed when the exposure counter (which counts downwards) reaches 1. If you pick up a camera and it seems to be jammed, check first whether the exposure counter is pointing to 1. If it is, actuate the knob behind the top-plate and move the counter on a bit. More often than not, the camera miraculously becomes unjammed.

compatible rangefinder camera, and only the Bessamatic had a full range of truly interchangeable lenses.

ACCESSORIES

Kodak produced a substantial range of accessories for the Retina Reflex models, and the lens accessories (filters, close-up lenses, lens hoods) can also be used with the Retina IIIS. A full range of filters and close-up lenses was available for each of the filter sizes of the various lenses.

The Retina Reflex S instruction book listed a right-angle finder that fitted over the eyepiece, a compact 'table stand' for document copying or detailed close-up work, a full-scale copying stand with lights and a microscope adapter. There was also a 'long-nose' case for a Retina Reflex fitted with a 135mm lens. **AP**

Thanks to Vic Rumak, Don Baldwin and John Kirkham of the PCCGB for research and help with photography

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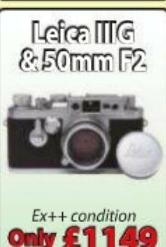
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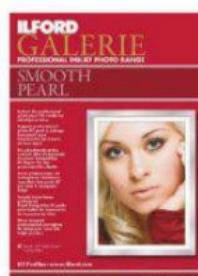
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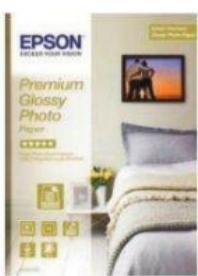
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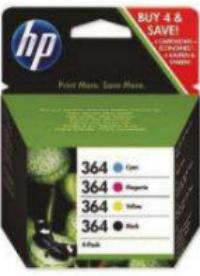
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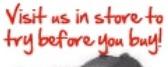
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- 1080p movie mode

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- 1080p movie mode

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D4 Body

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- 12.0 fps
- 1080p movie mode

A77 From £829

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- 6.0 fps
- 1080p movie mode

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- 1080p movie mode

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G5 + 14-42mm PZ £599
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- 16.05 megapixels
- 20.0 fps
- 1080p movie mode

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- 1080p movie mode

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- 6.0 fps
- 1080p movie mode

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X-E1



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- 6.0 fps
- 1080p movie mode

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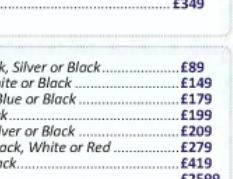
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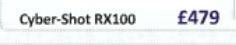
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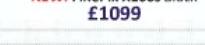
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Nikon Manual



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F5 Body Only.....	E+ /E++ £249 - £349	SB800X Speedlight.....	E/C £79	50-250mm F5 Zuiko.....	E+ £349
F4S Body Only.....	EXC / E++ £199 - £249	SU800 Wireless Commander.....	E+/E++ £189	65-200mm F4 Zuiko.....	E+/E++ £99 - £159
F100 Body + MB15 Grip.....	E+ /E++ £159 - £189	Metz 34AF-3 Flash.....	E+/E++ £29	75-150mm F4 Zuiko.....	E+ £29
F100 Body Only.....	As Seen £79	Sigma EF430 Flash.....	E+/E++ £39	80mm F4 Macro Zuiko.....	E+/E++ £149 - £199
F90 Body Only.....	E+ £35 - £69	Sigma EF500 DG ST Flash.....	E+/E++ £69	135mm F3.5 Zuiko.....	E/C £20
F80 Black + MB16 Grip.....	E+ £69	Sigma EF500 ST DG TTL Flash.....	E+/E++ £69	135mm F4 Macro Zuiko.....	E+/E++ £149
F80 Chrome Body Only.....	E+/E++ £39	Sigma EF500 Super Flash.....	Unused £75	180mm F2.8 Zuiko.....	E+/E++ £399
F80 Body Only.....	E+/E++ £39	Sigma EM 140 DG Macroflash.....	E+/E++ £169	200mm F4 Zuiko.....	E+/E++ £29

F70 Body + CF52 case.....	E+/E++ £59	F3HP + MD4 Motordrive.....	E+/E++ £179 - £199	Tamron 60-300mm F3.8-5.4 SP.....	E+ £49
F70 Body Only.....	E+/E++ £29	F3 Body Only.....	E+/E++ £149 - £219	F200 Flash.....	E+/E++ £65
F65 Chrome Body Only.....	As Seen /E+/E++ £25 - £45	F3 + MD4 Motordrive.....	E+/E++ £199	T10 Ringflash.....	E+/E++ £75
F60 Chrome Body Only.....	As Seen /E+/E++ £15 - £40	F3 MF14 Database.....	E+/E++ £219	T18 Flash.....	E+ £10
F55 Chrome Body Only.....	E+ /E++ £19 - £25	F3 Body Only.....	E+/E++ £129	T20 Flash.....	E+/E++ £95 - £125
F50 Black + 28-80mm.....	E+/E++ £59	F2AS Black Body Only.....	E+/E++ £349	T28 Flash Head.....	As Seen £49
F50 Black Body Only.....	E+/E++ £15 - £19	F2A Black Body Only.....	EXC / E+ £199 - £249	T32 Flash.....	E+ £20 - £55
F50 Chrome Body Only.....	E+/E++ £15 - £19	F2 Chrome Body Only.....	E+/E++ £199 - £239	T45 Hammerhead Flash.....	E+/E++ £75 - £175
F801 Body Only.....	E+/E++ £29 - £45	F2 Black High Speed.....	Unused £3,999	Power Battery Grip 2.....	E+/E++ £39

F601 Date Body Only.....	E+/E++ £29	F3HP + MD4 Motordrive.....	E+/E++ £179 - £199		
F601 + 35-70mm.....	E+/E++ £49	F3 Body Only.....	E+/E++ £149 - £219		
F601 Body Only.....	EXC / E+/E++ £19 - £35	F3 MF14 Database.....	E+/E++ £219		
Pronea 600 + 24-70mm.....	E+/E++ £79	F3 Body Only.....	E+/E++ £129		
Pronea 30-60mm.....	E+/E++ £39	F2AS Black Body Only.....	E+/E++ £349		
10.5mm F2.8 60mm F2.8 ED Fisheye.....	E+/E++ £359	F2A Black Body Only.....	EXC / E+ £199 - £249		
12-24mm F4 6.3 G AFD ED.....	E+/E++ £129 - £249	F2 Chrome Body Only.....	E+/E++ £199 - £239		
12-24mm F2.8 G AFS DX FED.....	E+/E++ £199 - £249	F2 Black Body Only.....	Unused £3,999		
17-55mm F2.8 G AFS DX FED.....	E+/E++ £59 - £639	F2 Chrome Body Only.....	E+/E++ £199 - £239		
18-35mm F3.5-4.5 AF ED.....	E+/E++ £249 - £298	F3 Body Only.....	E+/E++ £129		
18-70mm F3.5-4.5 AF ED.....	E+/E++ £125 - £149	F3 MF14 Database.....	E+/E++ £219		
18-135mm F3.5-5.6 G AF ED.....	E+/E++ £125 - £149	F3 Body Only.....	E+/E++ £129		
18-200mm F3.5-5.6 G AF DX VR.....	E+/E++ £279	F3 MF14 Database.....	E+/E++ £219		
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24-120mm F3.5-5.6 ED AF-ED.....	E+/E++ £125 - £149	F3 MF14 Database.....	E+/E++ £219		
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24-50mm F3.3-4.5 AFN-ED.....	E+/E++ £129 - £249	F3 MF14 Database.....	E+/E++ £219		
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24-120mm F3.5-5.6 ED AF-ED.....	E+/E++ £125 - £149	F3 MF14 Database.....	E+/E++ £219		
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20-35mm F2.8 AF-ED.....	E+/E++ £449	F3 Body Only.....	E+/E++ £129		
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24-50mm F3.3-4.5 AFN-ED.....	E+/E++ £129 - £249	F3 Body Only.....	E+/E++ £129		
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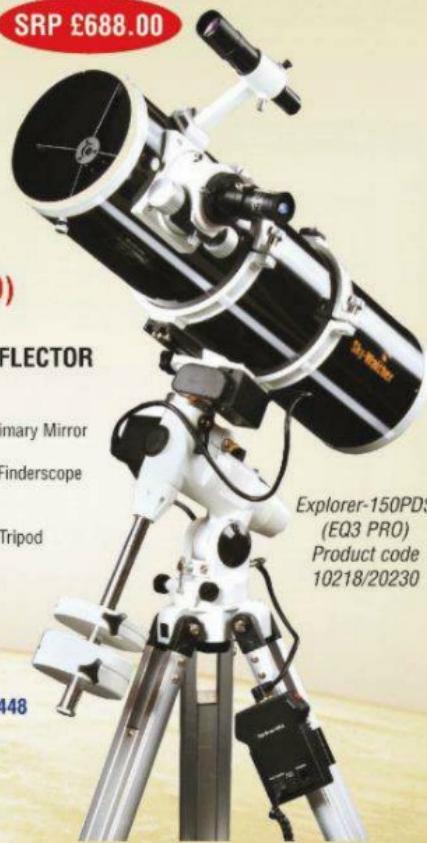
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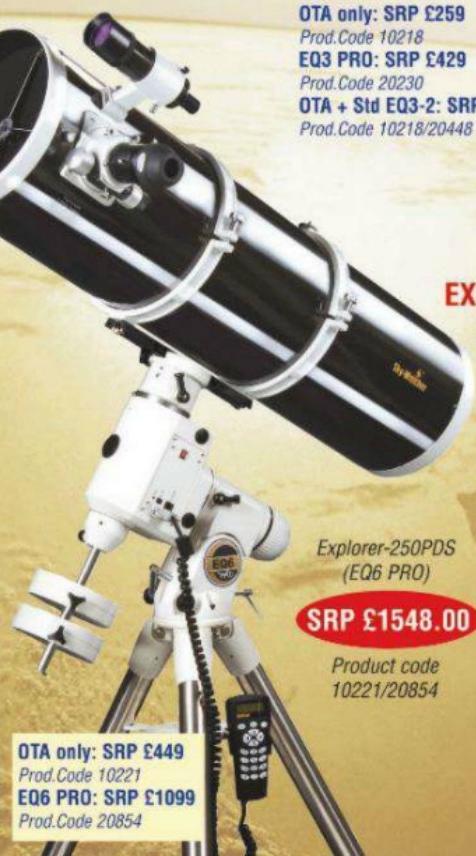
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OGDEN CHESNUTT

Should we embrace the actions of those who 'steal' other people's images from the internet or throttle them?

ELI IS 20 minutes late to meet me in the park to shoot daffodils, and after fishing my phone from my pocket to see if he rang enough times to make me look like an incompetent terrorist, it occurs to me to check our local pub around the corner.

Sure enough, when I walk in I see Eli's back, his head framed by a Mac screen and a crowd around him. Rick the barman catches my eye and shrugs.

'What are you doing?' I ask, stepping behind Eli's screen. 'You were supposed to meet me half an hour ago.'

'I can't shoot now,' he says. 'I've been robbed.'

'My God,' I say, sitting down. 'Are you all right?'

He looks up at me. He looks agitated, like a dog chewing chillies. 'I think so. But I could use a drink.'

I motion to Rick for two ales and take a seat next to Eli. 'What happened?' I ask.

'Well, I posted a set of images on Flickr of people wearing horse masks in the forest. I noticed I was getting all these views

- more than usual. So I investigated and found it's all coming from a website.'

'Pinterest,' I read out loud.

'That's right. People go on here and "pin" images from around the internet, and other people can repin them. And then other people can repin those. And suddenly everyone's got your images saved on their boards. I'm one of the more popular street photographers on this site.'

'That's great,' I say.

'No it's not. Because after they raided my Flickr photos they found my website and started pinning some of my best work. My images have been stolen from me, just like that!'

I'm relatively new to internet culture, but it strikes me as a great opportunity for photographers to make themselves known to people who would otherwise never hear of you. I've heard countless photographers like Eli complain about people stealing their images, so it must be a common occurrence. If there's nothing you can do about it, why not embrace the viral nature of the internet and the PR it can give you?

'Well, I've seen this site for the first time, but it seems people are celebrating, not stealing your work,' I say. 'It looks like these people's boards are more like "best of the internet" collections than portfolios of images they are claiming to have created. And if these so-called pins link back to your website, isn't that a good thing?'

'But this is my intellectual property,' Eli pleads. 'What kind of precedent are we setting if we allow anyone to appropriate our work?'

It seems to me that the internet is kind of like the

great library of knowledge in ancient Alexandria. You can find anything you want, and if you put your book on the shelf in this library, don't you kind of have to expect that someone else is going to check it out - and probably write in the margins?

If you post an image online, you're doing so because you want people to see it. So why get upset if a blogger uses it to illustrate a post? As long as they credit you, I see it as a compliment.

Posting an image online is setting it free in the world. And we all know what goes on there. The people who will pay for your image are always going to pay for your image, and the people who aren't, never will. So why not accept this reality and try to use it to your advantage?

'What I need is a better watermark,' Eli says, framing the E in his initials just over the horizon line.

'You've covered up that horse person's face,' I say. 'You're ruining that picture!'

'I'm protecting it!'

Now, I'm no photo-editing expert, but I know enough to realise that all you're doing with a watermark is creating an extra step in Photoshop

for the people who are determined to steal your image. To everyone else, you're just annoying them!

I've never understood why people spend hours trying to watermark over the sweet spots of their images to protect them from thieves. Have internet thieves never used the Clone Stamp or Crop tools?

Many watermarks are so over the top they overwhelm and spoil an image. What's more, when I click on an image that's completely covered with a watermark I feel like the photographer is treating me as a suspect, not an admirer of his work. The only way to truly protect your work is not to share it online. And no one wants that.

'Why not just post your images at 72ppi and keep your uploads no bigger than 1000 pixels. That will make it difficult to use them commercially,' I suggest. But I can tell he's not having it.

'I need to stop these pinners, and this is the only way. If I make my pictures difficult to see, they'll stop using them.'

I can't believe I'm the septuagenarian here. I can't believe I understand that you can't expect to be a part of new media and play by old rules, and the man half my age with a bag full of smartphones and tablets can't see how everything's changed.

'Done,' he says, increasing the opacity on his watermark before merging the layers. 'How does this look?'

'Ghastly,' I say.

'Excellent.' And he uploads all of them. **AP**

An avid AP reader since birth, **Ogden Chesnutt** lives for photography and the sound of a tripped shutter. In the third issue of each month he shares his photographic experiences and thoughts, as well as his adventures with his camera club friend Eli

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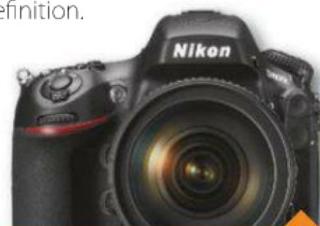
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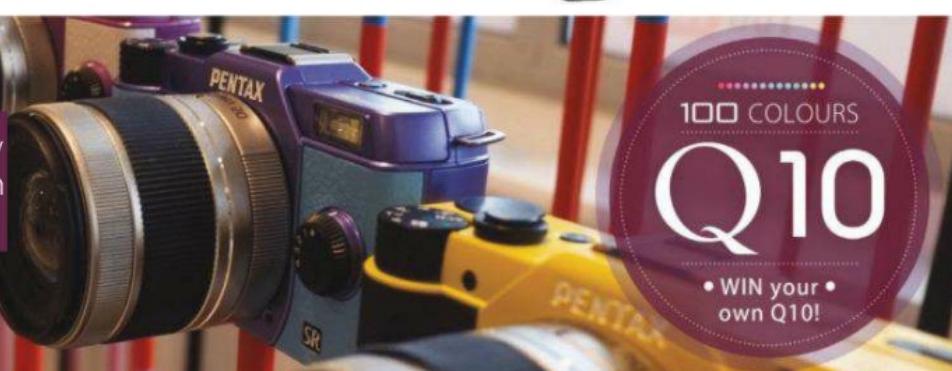
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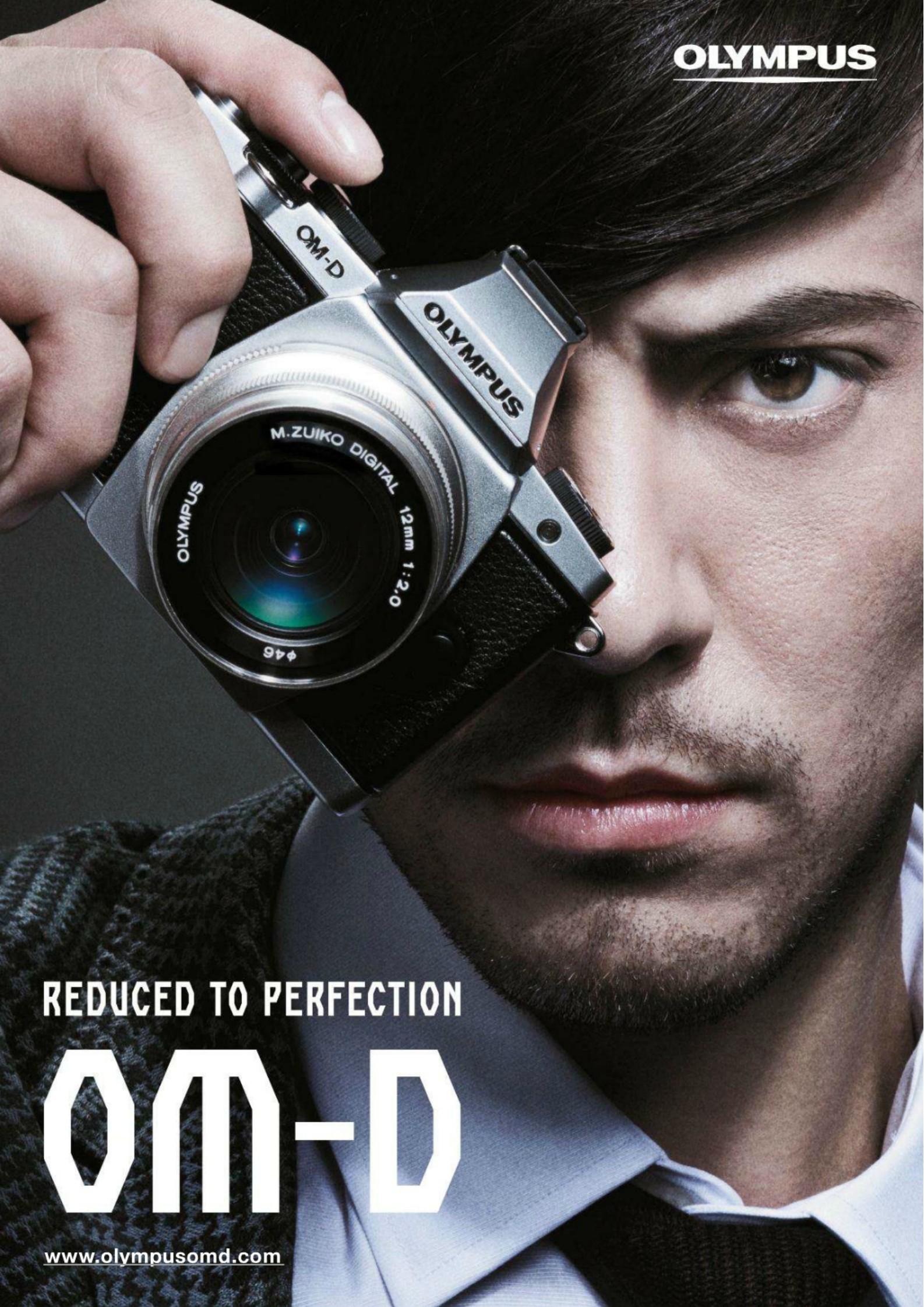


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